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Correspondence.—Wishing to make this JOURNAL a gazette of intelligent discussion to those of our readers who may wish to gain or give information on the subjects to which its columns are devoted, correspondence is solicited for publication from all who make the study of those subjects a pleasure or a profession.

Collections are invariably made directly from this office for subscriptions, advertisements, etc. We have agents to solicit the same, but they are not authorized to receipt for money.

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[OFFICIAL NOTICE.]

Seventh Annual Meeting, Wisconsin Gas Association.

WISCONSIN GAS ASSOCIATION,
OFFICE OF THE SECRETARY,
RACINE, WIS., April 21, 1908.

To the Members of the Wisconsin Gas Association: The seventh annual convention of this Association will be held in Milwaukee, Wis., on Wednesday, the 13th, and Thursday, the 14th, days of May next. Headquarters will be in the Hotel Pfister. Inasmuch as the Public Utility Companies of the State are now under the supervision of the Railroad Commission of Wisconsin, the session will be largely devoted to matters pertaining to this subject.

Respectfully yours, HENRY H. HYDE, Secy.

[OFFICIAL NOTICE.]

Wrinkle Department, American Gas Institute.

To the Members of the American Gas Institute: All members of the Institute are earnestly requested to send in as soon as possible contributions for this year's Wrinkle Department report. The success of the Department depends entirely on the co-operation and assistance of the members.

Mail all contributions to Milan R. Bump, Editor, No. 60 Wall street, New York city.

[NOTICE.]

Third Annual Meeting, Natural Gas Association of America.

OFFICE OF THE SECRETARY,
KANSAS CITY, MO., April 6, 1908.

To the Members, Natural Gas Association of America: Gentlemen—The third annual meeting of the Natural Gas Association of America will be held in Kansas City, Tuesday, Wednesday and Thursday, May 19th, 20th and 21st. The following papers will be read:

"Geology Relative to Natural Gas," by Mr. F. H. Oliphant.

"Transportation of Natural Gas," by Mr. Wm. M. Welsh, Chief Engineer Kansas Natural Gas Company, Independence, Kas.

"Method of Distribution Management," by Mr. James Strickler, City Superintendent, Columbus, O.

"Field Operation," by Mr. Walter McClay, General Superintendent, Philadelphia Company, Pittsburgh, Pa.

"Methods of Accounting," by Mr. W. R. Hadley, Pittsburgh, Pa.

"Installation of Distribution Systems," by Mr. John B. Klumpp, U. G. I. Company, Philadelphia, Pa.

Other papers, the Question Box and Wrinkles, are in the course of preparation, and announcement of the titles of the papers will be made later.

For the entertainment of the delegates outside of the business meet-

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ings, arrangements are in the hands of an Entertainment Committee for visits to various parts of this very interesting city, and for a banquet on Thursday night. There will also be trips of interest; and a theater party for the ladies. The business meetings and the banquet will be held on the roof garden of this hotel. It is suggested that reservations for rooms be made at as early a date as possible.

It has also been determined to take the entire ground floor of a building immediately south of the Savoy Hotel, which will be the headquarters of the Association for the purpose of demonstrating various appliances for using natural gas.

This room is large, well lighted, well ventilated and readily accessible, not only to the members of the Association, but also to the public. As the building is piped the various appliances exhibited can be shown in actual operation. Manufacturers of appliances wishing to make a demonstration thereof may obtain any necessary or desired information concerning this display by applying to Mr. R. O. Fritz, 2012 Baltimore avenue, Kansas City, Mo. Yours very truly,

J. H. DUNKEL, Secretary.

BRIEFLY TOLD.

AFFILIATION BETWEEN THE AMERICAN GAS INSTITUTE AND THE ILLINOIS GAS ASSOCIATION.—We have received the following communication from Dr. A. C. Humphreys, President of the American Gas Institute, in respect to the news that the tentative merger for the affiliation of the Illinois Gas Association and the American Gas Institute has become a fact, through the ratifying action taken at the recent meeting of the first named body. The text of the official promulgation of the merger is appended:

HEADQUARTERS, AMERICAN GAS INSTITUTE,
UNITED ENGINEERING SOCIETIES BUILDING, NEW YORK.

To the Members of the American Gas Institute: The Illinois Gas Association, having complied with the requirements of the Constitution of the American Gas Institute, an agreement of affiliation between the Institute and the Association has been executed. Mr. J. H. Eustace has been appointed as the Association's representative on the Institute's Board.

A. C. HUMPHREYS, President.

MR. PHILIP CROSS RETIRES FROM THE DENVER COMPANY.—It is putting it mildly indeed when we say that great surprise was our portion on receiving the notification that Mr. Philip Cross had handed in his resignation as Commercial Manager of the Denver Gas and Electric Company, and that the resignation had been accepted. To go a trifle further, our narration of the circumstance, as furnished in the information forwarded us respecting the occurrence, is all the more perplexing when we find it said that he proposes eventually to go into the bond brokerage business, or right upon the conclusion of a vacation which he proposes to spend in the East. In fact, we can hardly accept that his retirement from the gas business of itself is a surety. Quite to the contrary, when that vacation ends we expect to soon find him back again in the fraternity, as hard at work in the ranks as ever. We believe this because he is too valuable a man by far to be permitted to practice actively in a different business field. However, here are the particulars respecting his action as they virtually appeared in the Denver papers:

"Mr. Philip Cross, one of the best known gas men in the West, and the man who has had more to do than anyone else, perhaps, in bringing the Denver Gas and Electric Company to its present stage of commercial success, has handed in his resignation as Commercial Manager of the Company, to take effect May first. He has held the position from which he now retires for 8 years, having been engaged by the Eastern capitalists who in 1898 secured control of the Archer-Fay and other interests of the old Denver Gas Company to reorganize its business. Previous to the Denver appointment he had been General Manager of the Syracuse (N. Y.) Gas Company, which was owned by the capitalists who had obtained control in Denver. He is a Director in the Denver Gas and Electric Company, and has ever shown the greatest interest in the growth of its trading, which has signally shown under his active and intelligent direction. He is well known, of course, in general business circles in the State of Colorado, and is prominent in its Club life, being a Director in the Denver Club, and an enthusiastic member of the Denver Athletic Club. He will leave with his family for the East immediately after his resignation becomes effective. He will remain East for 4 months or so when he will return to Denver and probably engage in bond brokerage."

CURRENT COMMENT.—

THE Ypsilanti (Mich.) Gas Company is constructing a new building in which to house a complete new water gas manufacturing plant, the latter to consist of generating apparatus, exhauster and supplementary machinery. The contract for the construction complete was awarded to the Gas Machinery Company, of Cleveland, O.

A CORRESPONDENT in Chicago, writing under date of the 16th inst., says: "The Peoples Gas Light and Coke Company has been holding a series of demonstration lectures on domestic uses of gas, the affair being under the direction of Mrs. Helen Armstrong. These illustrations—if I may so use the word—were intended mainly for the benefit and instruction of the Company's employees, and the interest in the course became so great that towards the close of the series 500 of the employees were close followers of the teacher's instructions. The writer unhesitatingly asserts that Mrs. Armstrong is certainly a great one in her profession. At the close of each session she was fairly bombarded with questions, to all of which she returned, without the slightest hesitation, answers that went right to the point. Unless I am quite in error the thought of holding these meetings originated with Mr. J. C. D. Clark, whom I have often heard express the idea that salesmen and fitters, in fact that all those employees of a gas company, whose duties bring them in close touch with the consumers, should know everything or detail of the business from A to Z.—O. R. M."

THE Louisville (Ky.) Gas Company has offered for sale in public competition $200,000 of its 5 per cent., 20-year gold bonds. The bids are to be submitted in sealed envelopes, addressed to the National Bank of Kentucky, and will be opened publicly in the Directors' room of that institution at and after noon of the 30th inst. The bids must be accompanied by a certified check covering 5 per cent. of the amount submitted by the bidder. The awards will be made the afternoon of the 30th, and complete payment must be made on or before the 5th prox.

A FEATURE of the recent pure food exhibition in Houston, Tex., was the booth maintained by the Houston Gas Company, where a model kitchen, using gas as fuel, was in full swing. Right in full view of the visitors' food was cooked and offered for consumption at intervals corresponding to breakfast, luncheon and dinner times, and no mistake is made in saying that the Company's booth was the star attraction of the exhibition. The display was under the immediate control and direction of Mr. R. E. Turrentine, the Company's sales' agent, and Mr. Morris Levy, the Company's advertising manager.

"R. W. H.," writing from Cleveland, O., under date of the 22d inst., incloses the following: "A differential rate of 80 cents per 1,000 cubic feet, applying to all users whose accounts show a monthly consumption of 100,000 cubic feet or over, has just been established by the Indianapolis (Ind.) Gas Company. Further, the rate has been made retroactive in that it is to apply on all gas registered prior to the month ending March 20. The rate for all consumers has been 90 cents a 1,000 feet, and still remains at that figure for all using less than 100,000 feet a month on a single meter. Mr. Carl H. Graf, General Manager of the Company, said the reduced rate had been made because the Company regarded it as good business to encourage the larger consumption of gas by large consumers. 'I have been wanting to make a concession in rate to the larger consumers ever since I came to the Company as Manager,' said Mr. Graf, 'and have been urging it, especially in the last year. Our people finally consented to the differential, provided there were no legal obstacles in our franchise, and our attorney held that there would be no discrimination. Mr. Winter told us that he can find no legal obstacle in the way of the new rate, and we established it at once.' He explained that the making of a reduced rate to large consumers was in line with the policy of a number of the gas companies of the larger cities of the country. It is profitable to the companies, he said, because it cost the company just as much to handle the account of a man who pays at 50 cents a month as it does to handle the account of a concern consuming $100 worth of gas a month. 'The small consumer's meter,' said he, 'must be read just as often and in just the same way as that of the large consumer, and it costs us just as much to keep one book account as another. In fact, a gas company would much rather have 10 consumers burning 100,000 feet each than to have 100 consumers burning 10,000 feet each. We want to increase the number of our large consumers.' When asked whether the possibility of competition by the Citizens Gas Company had anything to do with the new rate made by his Company, he replied: "Not at all. If we had had that in mind we would have taken an entirely different step from this."

"MR. C. E. SHARPE has resigned the dual post of Vice-President and General Manager of the Peoples Power Company, of Moline, Ills., the resignation to become effective the 15th prox. His successor is Mr. J. M. Barrett.—L. T."

[Official Report.—As Furnished by the Secretary.—Concluded from Page 679.]

THIRTY-EIGHTH ANNUAL MEETING, NEW ENGLAND ASSOCIATION OF GAS ENGINEERS.

Held in Young's Hotel, Boston, Mass., Feb. 19 and 20, 1908.

Second Day—Morning Session.

Question Box—Concluded.

The Secretary—Another question is:

"How has benzole enrichment withstood low temperatures in New England?"

Since that question has come in New England has had some low temperatures, and I hope the information will be forthcoming.

The President—Can anyone from New Haven state what results they have had with the use of benzole for enriching?

Mr. Wyant—Mr. President, we have not had any experience in benzole enrichment in the sense of introducing benzole directly into the gas. I have been very much interested in the experiments that have been made in various cities in New England, but have nothing to offer on the subject.

The President—Mr. Coffin, of Gloucester, possibly will say a word.

Mr. Coffin—We have been using benzole since last July with very satisfactory results, enriching our gas more satisfactorily than ever before at about one-third the former cost. We have not had until very recently any very low temperatures. I am not in a position to state exactly, but from observation I should say that it held up within 5 per cent. We practically lost from ¾ of a candle to 1 candle at zero temperatures over the ordinary average temperature for the 6 months before then, which I think would be no more than you would lose from any gas made and enriched in any manner under the same conditions. In fact, I have seen the time when with oil, especially some of the heavy oils we got from Texas, you might as well have injected water in the winter as oil.

The President—Mr. Gifford, of New Bedford, I think has had experience. We would be glad to hear from him.

Mr. Gifford (New Bedford)—We have not been using benzole during the present cold weather. I have some figures here for 3 weeks during the early part of January. The gas before enrichment was 15 candles. These are averages for the time. The candle power at the works on the street was 17.6; candle power taken at the office, 17.4. There is a drop of .2 to a candle for the first 3 weeks of January as an average.

The President—Thank you, Mr. Gifford. The question has been put in. If any of you have any information to impart or anything to suggest now is the proper time for it.

Mr. Kennedy—Would it not be interesting to know what Lowell has done in this line? I believe they have been experimenting considerably.

The President—It certainly would. We shall be glad to hear from Lowell.

Mr. Kellogg—It is hardly fair to bring in our so-called experience, because it has been wholly of negative value so far. As far as I can see I have not been able to raise the candle power 1 candle, no matter what I put in, and I have run it in as high as 20 gallons an hour.

Mr. Wyant—I have been hoping very strongly to hear the result of the experiments with the benzole enrichment, and it seems strange that we don't get very many returns. My own feeling in the matter is that in mixed gas it would be almost impossible to maintain a higher percentage of benzole than we can maintain by our ordinary water gas enrichment. I have a few figures here which show something about this matter of condensation as we find it. This, however, is simply with the use of water gas enrichment. Starting with February, the mixed gas before leaving the holder tests 22.09, and at our office, a mile from the works, it drops to 20.19. We find a decreasing drop going on month by month until we get to June, where the tables begin to turn, and our works candle power is less; that is to say, the candle power of the gas at the inlet of the holder is less than that of the gas delivered at our town office. That condition continues during June, July and August. Beginning with September, the candle power then drops off, after leaving the holder, which shows that during the cold weather we are simply depositing illuminants in the holder, and during the warm weather the heat of the sun re-evaporates that condensation in the holder and adds it to the gas.

Mr. Walker—Mr. President, we have used benzole since October. In January we maintained the same average candle power as in January, 1907, when we used oil, showing that the candle power kept up, and the cost showed a saving of about 60 per cent. over that of oil.

The Secretary—How about the last two weeks?

Mr. Butterworth—I am a guest here. May I speak a moment on this?

The President—Certainly.

Mr. Butterworth—In Detroit we buy one-third of the gas we sell from the Solvay Process Company, and have the right under our contract to call for any candle power we desire between certain limits, 15 to 20. They enrich the gas that we ask to have of high candle power with their own benzole. This winter, during the 2° below zero weather which we had, we discovered that the gas sent to us from their works, 2 miles distant from ours, had dropped 5 candles when it came to us. Starting at an initial candle power of 20 it reached us at only 15. The main through which that gas passes is an old natural gas main, laid very close to the surface, and it gets very cold. That possibly has something to do with the serious drop in candle power. Of course, when we made that discovery we immediately called for only 15-candle power gas, and we now get about 14.

The President—Thank you, Mr. Butterworth. Is there any other gentleman?

The Secretary—I would like to ask Mr. Butterworth how it acted in his own distribution?

Mr. Butterworth—Of course, when this had once condensed to 15-candle gas we had no further drop.

The Secretary—Did you key it up any from that before you sent it it out?

Mr. Butterworth—Yes; we sent out 18-candle gas?

The Secretary—Did you have any drop from your works to the consumers?

Mr. Butterworth—No, sir; not after that.

The Secretary—Do you enrich with benzole or by some other method?

Mr. Butterworth—We enrich with water gas ourselves. The coke oven gas leaves the Solvay Works at about 8 candle power, and they enrich this with their benzole to the candle power that we ask for. During, say, 8 months of the year, the benzole enrichment is quite permanent, tests showing but little drop in candle power, even with the gas as high as 20 candles. During the extreme cold of January the gas retained the benzole enrichment to the extent of 6 or more candles.

Mr. Kellogg—I think, in view of the fact that we are getting information from men actually engaged in using benzole, or trying it, that the Association would benefit by the experience of a benzole salesman who is present here, and who can tell us some of the results which are being attained throughout the country. I make that as a suggestion.

The President—I was looking round for Mr. Kuntzsch. We shall be glad to hear him submit any records he possesses compiled from reports from the different companies of New England. Probably that is the way the Association would like to have it.

Mr. Kuntzsch—Mr. President, I somewhat doubt the propriety of my entering into this discussion, owing to the peculiar position in which I am placed, being a representative of the Semet-Solvay Company, a firm which both uses and manufactures for sale benzole for enrichment purposes. Nevertheless, since you have called upon me, Mr. President, may I transgress slightly the bounds of propriety to answer the two statements unfavorable to benzole enrichment just made, one by Mr. Wyant, of New Haven, the other by Mr. Butterworth, of Detroit. The former in his argument implies that because the candle power of a mixture of water gas and coal gas drops two candles during cold weather, the drop is due to the precipitation of benzole. I maintain that the drop is not due to benzole in itself falling out, but due to the dropping out of vapors of a much lower vapor tension, which, when thep drop out, have a washing effect upon the gas, and absorb vapors of higher tension contained in the gas, this washing effect continuing until the vapor pressure of these deposited oils is at equilibrium with the density of the vapors in the gas, temperatures and pressures being, of course, taken into consideration. Mr. President, I would like to ask Mr. Wyant if it is not his opinion that the drop in candle power is due principally to vapors of low tension, which, when they drop out of the gas and are carried along in it in the form of a mist, extract a small portion of the benzole from the gas.

Mr. Wyant—I do not find it so, sir.

Mr. Kuntzsch—What percentage of benzole do you find in the first drip liquor at the New Haven works?

Mr. Wyant—Which drip do you mean, sir?

Mr. Kuntzsch—The first drip of main leading to holder.

Mr. Wyant—I cannot tell you. I have no analysis of it.

Mr. Kuntzsch - Some time ago, Mr. Wyant, I had occasion to go over this same subject with Mr. Beardsley, your chemist, and if I remember rightly the analysis sheets indicated a benzole of about 15 to 17 per cent.

Mr. Wyant—If you are asking as to the condensation in the holder, we get about 20 per cent. benzole in that condensation.

Mr. Kuntzsch—Then you agree with me in that the main content of drip oil is not benzole, but its higher homologues, which have an extremely low vapor tension and therefore the capability of extracting from the gas either benzole or any other high tension vapors. I appeal to your sound and impartial judgment, Mr. Wyant, and to that of those here assembled who have made a study of and are familiar with the composition of illuminating gas, particularly the composition of the illuminants contained therein, whether or not I am right when I state that approximately two-thirds of the illuminating value of either coal or water gas is due to benzole, it constituting at least 10-candle power of a 15-candle power coal gas and about 12 candles of an 18 to 19 candle power water gas. If, therefore, by adding a few hundredths of 1 per cent. of the high grade benzole to this gas the amount added will fall out in cold weather, why does not the benzole fall out of a so-called unbenzolized coal gas? The question has often been put to me as to how efficiently benzole will withstand winter temperatures. I have always maintained that the amount of benzole necessary for enrichment during cold weather, compared with the amount necessary during warm weather, depends entirely upon the quality of the gas enriched. If the gas to be enriched is high in vapors of low tension, then surely, as the gas becomes chilled, these vapors upon precipitating will bring down a small portion of the benzole, which fact is in accordance with natural laws and which occurs also in a carburetted water gas, an enriched coal gas, a coal gas enriched with gas oil, as well as a benzolized coal or a benzolized carburetted water gas. For this reason some of the gas companies using benzol are compelled to use a somewhat larger amount during cold weather than during warm, although the majority use about the same quantity per 1,000 feet. In response to Mr. Butterworth's statement, I wish to impress upon you the fact that a coke oven gas is not exactly the same as retort gas, being made under somewhat different conditions, and is of a much lower initial candle power. We are enriching a very low candle power gas of about 7 to 8 candles, and bring the candle power to as high as 20 by means of benzole. We deliver to the Detroit City Gas Company each day gas of a candle power specified by them over the telephone, as wanted for the day, and ordinarily we meet the requirements very closely. We are not, however, discussing benzole enrichment of coke oven gas, but benzole enrichment as practiced in foreign countries, especially in Germany, where it has met with such pronounced success. Mr. Miller stated yesterday, in answer to an inquiry of Mr. Barnum, that benzole is probably the best enricher known. In fact, it is.

Captain McKay—If the gas loses 5-candle power, is it material whether the benzole comes down or something else? What is wanted is the candle power. If Mr. Butterworth finds that the candle power drops from 20 to 15, he probably wants to know where this 6 candles are, not where the benzole is.

Mr. Miller—I am sorry to be dragged into this controversy.

The President—I can only say that we are delighted.

Mr. Miller—Possibly I did state that benzole is the best enricher, but I was only referring to the products of coal tar, which was the subject under discussion. The amount of benzole that will remain in any particular gas depends on several variable factors.

The President—We shall be glad to hear from Major Hinman. He is a past master on all these little scientific points.

Mr. Hinman—I have had very little practical experience with benzole. It may be interesting to know that, compared with gasoline, in round numbers it seemed to be about twice as efficient, gallon for gallon. Whether it will condense or not is simply a question of vapor tension, how much you put in, what degree of cold you subject it to. I believe other enrichers are really more efficient. The acetylenes have a very high candle power. I don't intimate that it is commercially possible to enrich with acetylene; it is a question of dollars and cents whether acetylene, or benzole, or gasoline, or the illuminants that are in coal gas or water gas are available. You can make only so much of vapors in any gas at a given temperature. It is a question for analysis. I have not in my mind just exactly the illuminating values of each of the various illuminants, but I think their order is sometbing like this: Acetylene has the highest value, possibly benzole is next, ethylene and what they call the coal gas enrichers next. That is only a very rough classification.

The President—Thank you, Major. Mr. Kennedy has sojourned abroad for some time. Possibly he may have come in practical touch with manufacturers who were using benzole for enriching.

Mr. Kennedy—Like Mr. Miller, I don't care to be dragged into this thing.

The President—Well, it is the custom of the New England Association.

Mr. Kennedy—I am not discussing it from any technical point of view, but I think the number of benzole plants that are on the scrap heaps and the number of water gas plants that are working close by pretty well illustrate what one cannot do and the other can do.

Mr. Kuntzsch—Mr. President, I do not wish it to appear that I want to make this a business argument. I am fostering benzole enrichment enthusiastically as well from a scientific standpoint as for any material advantages derived from its promotion. It is something that should appeal to you if it has merit, and this is the time and place to find out whether or not it has merit. Therefore, may I suggest, Mr. President, that you obtain from those who have enriched with benzole during the past 5 to 8 months their opinion of it, based upon practical experience. In this way it can be easily determined whether or not benzole enrichment is practicable.

The President—The chances are that we shall want to resume this discussion after dinner, when some of the members now absent, who have been using benzole, can speak ex cathedra, will favor us; opportunity anyhow will be extended to them. It is certainly an excellent subject for future presidents to bear in mind. Isn't there a translation which we don't find in the revised edition of the Bible, but which I think should read "How great a fire a little benzole enkindleth." We have evidence of sparks, flame and smoke, and I think we were down to the scrap heap before we got through. Now, gentlemen, if there is nothing more to be said on this question, we will ask Mr. Kelly, if he is present, to read his paper on "Distribution." Is Mr. Kelly present? Apparently not! So if there is do objection, we will consider the paper submitted by Mr. Kelly as read, and print it with the rest of the minutes of this meeting. Is there any objection to that?

Captain McKay—Mr. President, I make that motion.

The President—It is moved and seconded that the valuable contribution of Mr. Kelly, "Distribution Notes," be printed among the minutes of the meeting. Just one more question, gentlemen, and that will clean up the slate. It is:

"What is the best method of paying solicitors?"

Now don't all speak at once. Is Mr. Burr, of New Haven, present? Well, of course, if no person wants to talk on that question we will have to pass it. Mr. Butterworth, we will be glad to hear what they do in Detroit in the matter of paying solicitors.

Mr. Butterworth—We simply pay a straight salary, no commission, no bonus—and daily review their work, keeping close tab on that.

The President—What salary do you pay?

Mr. Butterworth—From $50 to $100 per month, according to efficiency and length of service.

The President—Mr. Nute, can you contribute anything on this matter of payment of large sums to solicitors?

Mr. Nute—I think the best method of paying them depends very much upon the men. We have used both methods, a regular salary without any commission and a salary and commission. If a man is absolutely reliable and will put in his time, won't be killing time because he is sure he is drawing his salary, a salary probably is better.

The President—If the company is not large enough to afford a "New Business" man to follow up the solicitors carefully, perhaps the better way to pay is by a salary and a small commission, so that the solicitor will have more of an incentive to work for every stove or meter possible.

Mr. Gardiner—May I attempt to answer that question in this way: The best way to pay solicitors is the way that is best suited to the local conditions? I am interested in quite a variety of companies, in which we pay straight salary, and we pay commissions, and we pay commissions in different ways. There is also a large sized argument as to whether the commissions should be based on the connected load or the equivalent of the connected load in gas or whether the commissions should be based on revenue, whether they should be based on total revenue obtained by the department or whether it should be segregated revenue obtained by each solicitor. The most intricate

but what I think is the most efficient, system of paying solicitors where local circumstances allow it to be used, is to pay a salary and a commission, a certain percentage of the increase in net earnings for the month over the corresponding month in the previous year being set aside for the total payment to the New Business Department men. Three-fifths of that is segregated among the men on the basis of salary, simply because they are members of the New Business Department, the other two-fifths of that increase in the net earnings is apportioned to them on the basis of the new business which each one of them obtained. That sounds very intricate, but where the company is organized for it, where the general conditions of work in the city allow of its being applied, it is working extremely satisfactorily. Personally I don't favor the connected load theory. I like to pay a salary and commission wherever possible; but in many, many circumstances it is not possible and would lead to a great many complications which would be undesirable.

The President—Thank you, Mr. Gardiner. Well, gentlemen, we shall now proceed to close the meeting. We are very much indebted to one and all who have participated in the proceedings and so have done much to make our sessions profitable. In these enlightened days no man can afford to go it alone all for himself and the corporation in which he may be connected. Co-operation is in the air; it is the very spirit and life of our Association. In no finer way can we magnify the Association than by living up to the principle "Each for all, and all for one." Thanking you for the great consideration shown me, a motion to adjourn will now be considered. [On motion the sessions were declared adjourned.]

[Official Report.]

FOURTH ANNUAL MEETING, ILLINOIS GAS ASSOCIATION.

Held in the Auditorium Hotel, Chicago, March 25 and 26, 1908.

First Day—Morning Session.

The opening session of the meeting was called to order by President Eustace, at 10 o'clock A.M., with an attendance of about 150 members. The President further said: Gentlemen of the Illinois Gas Association—We had hoped to have Mayor Busse present on this occasion to greet you, but owing to pressing business he is unable to be here. However, I take great pleasure in introducing, as his representative, Mr. E. G. Wetton, who will say a few words of welcome.

Address of Welcome.

Mr. Wetton—Gentlemen, it is currently reported that on a very recent occasion a tramp appeared at the back door of a very kindly disposed woman and asked her for something to eat. She brought him what the pantry afforded, and after he had partaken freely she, having engaged him in conversation to learn of his past life and satisfy her womanly curiosity, and for the hundredth time listened to the story of a man whose family had been lost in the Johnstown flood, and who became thus a wanderer on the face of the earth trying to reassemble his family. The tramp felt kindly disposed to the old lady and asked her whether he could not saw some wood. The woman told him she did not have any wood to saw. He then wanted to know whether he could carry in some coal, to which the woman replied: "No; we haven't any coal. We burn gas." "Well," said the tramp, "Can't I turn on the gas?" That is my particular position this morning, not only to turn on the gas but to turn the city over to you. I assure yon, on behalf of the Mayor, that I extend to you a most cordial greeting, and regret that he is not here to greet you in person. I assure you that nothing but unavoidable business would have detained him. It is always gratifying to have people throughout the country and the States come to Chicago. It is particularly gratifying to have business men select Chicago as a place of meeting. We who live here believe Chicago is a wonderful city. We believe we are entitled to a great deal of credit on account of our push, our energy and our particular development, and I believe that to Chicago is accredited the statement that it is the hustling city of the world. I am glad to assure you gentlemen, however, that there is a great prospect of our gradually, in fact very rapidly, losing our reputation for commercialism, because we are turning our attention to other things, realizing that commercialism is not the only thing in this life. We have the greatest parkways in the world. We have recently established juvenile courts which are being copied by practically every large city in the country, in which we take the youthful offender and treat him differently than we do the hardened criminal. We have established, in fact Chicago is the pioneer in this respect, municipal playgrounds. We endeavor to take the spots which you gentlemen probably do not know anything about, but that are practically plague spots in our city, and are gradually transforming one or two or three, or probably six or seven, blocks in the tenement district into municipal playgrounds, so that these people who live in manufacturing districts will have the benefit of these cases, these breathing spots in our municipality and get the same advantages as those who live adjoining the large parks. Soon we will have what we call the outer belt or connecting link between our parkways, and we expect to take advantage of this suitable lake front here and change it to a garden spot. To all these things, gentlemen, I assure you, in spite of our reputation for commercialism, we are giving serious consideration. Large problems confront those who govern a city like Chicago; when you sometimes hear about how bad we are, remember that we have a great deal to claim our attention. Let me cite one illustration: We have 4,250 miles of streets, of which only 1,500 miles are paved. The greatest length of streets that Chicago can pave in a single year is 100 miles. Starting to-day and paving to our greatest capacity it would take us 27 years to pave the balance of the streets we have here in our city, and without any repairs to the 1,500 miles we have paved at the present time. That gentlemen, is simply an illustration of the great institution we have here and to show you how difficult it is to watch all of the details. Yet, gentlemen, these great responsibilities make great opportunities, and I trust that when you are here that you will take the opportunity to see what we have. I am sure that the local committee will extend to you every privilege which this city does most heartily, realizing that if we can show you what we have in Chicago it will have its effect upon the cities of the States. We have an important position here, because two-thirds of the population going throughout the Western territory has of necessity to pass through our gates, and the success or frailty of our institutions must of necessity impress themselves upon the great Northwest. Gentlemen, as I said a moment ago, great responsibilities make great opportunities, great opportunities make great men, great men always, bear in mind, make a great nation, and it is a great nation which must be God's agency to bring about the great millenium. Gentlemen, I thank you.

Mr. Pratt's Response.

The President—We have with us this morning Col. E. G. Pratt, upon whom I will call to kindly respond to the cordial welcome extended us.

Col. Pratt—Mr. President, I feel some embarrassment in being called upon to respond to the eloquent and earnest words offered by the gentlemen representing the city of Chicago, for the reason that I am not as yet a full-fledged member of the Illinois Gas Association; but having had a residence here during the past year and a half, I hope to be. I presume likely it is on account of my affiliation with or membership in so many kindred organizations that the President possibly saw fit to call on me at this time to respond to the gentleman who spoke for the city of Chicago. I want to say to him that I suppose, in his province and in the performance of his duties representing the Mayor of this great city, that he has the opportunity of greeting men of many associations, and I imagine that the representatives of a hardware association or a paint association or any kind of an association of men look the same to him as this association does; but I want to assure him that there is no business that I know anything about, and probably in no business in existence do the men representing an important industry like this one get together with a greater feeling of enthusiasm and responsibility and of good fellowship than they do in this case, for the purpose of discussing matters of interest to the companies they represent and of importance to their patrons. Recently the three very large associations of the country were amalgamated into one large assembly known as the American Gas Institute. That Association or Society meets once a year, and because of its large scope it cannot and does not discuss local matters, hence the springing up, in the different States of the country, these State organizations. The Institute is more or less of a technical organization, as it must of necessity be. The work is assigned to such men as are competent to perform in the different branches or departments of the business in which we are engaged, but the meetings do not afford the opportunity of getting together in the same way and in the same manner that these State organizations do; and it is for the purpose of getting into closer communion and discussing our experiences and of assisting each other as best we can, and especially the younger element in the associations, that these State organizations will thrive and will con-

tinue to grow because of the feeling that the discussions partake of those things nearer home and, therefore, better understood. It is not necessary for the gentleman representing the Mayor of this great city to say that men and people are "Always welcome to this city of Chicago." This city, if it is not already, is fast becoming the Mecca of all conventions and of all associations. People from all parts of the country know that when they come to Chicago they receive here the right hand of fellowship, a city, which while a large city, is not so large but that there is a feeling of good fellowship toward those who come here. These gentlemen from Illinois, of course, are thoroughly familiar with this great city; they need no instruction or direction. It is here that many of them come to buy such supplies as they are unable to obtain in their own home town. When you were speaking of the tramp who seemed to have the ability to turn on the gas, I could not help but think that certainly the members of this Association, and other associations, have performed their duties well when they have extended the use of gas so generally that even his trampship knows how to turn on the gas. I think I voice the sentiment of every gentlemen here present when I say to you, sir, that we appreciate the kindly remarks you have made, and we shall hope to make the most of our opportunities while we are here and to enjoy the privileges that you have extended. We thank you.

Reports of Secretary and Treasurer.

Mr. C. H. Quackenbush, as Treasurer, reported a total receipt during the year of $841.67, an expenditure of $368.62, and a balance of $473.05. The figures were accompanied by a certificate from the Auditing Committee (Mr. Z. T. F. Runner), who reported that the accounts had been examined and vouched for.

As Secretary, Mr. Quackenbush, presented the following copy of an

AFFILIATION AGREEMENT

between the American Gas Institute and the Association:

In virtue of an agreement, made this 17th day of March, 1908, between the Illinois Gas Association and the American Gas Institute, to affiliate under the terms of Section No. 55 of the Constitution of the American Gas Institute, the aforesaid Illinois Gas Association agrees from this date to confine its elections to membership to persons directly identified with gas interests within the State of Illinois.

The Illinois Gas Association further agrees to consult with the Institute before undertaking any original work, and to do each year, in co-operation with the Institute, a certain amount of original work.

The American Gas Institute agrees that the Illinois Gas Association shall be entitled to elect one of its members a member of the Board of Directors of the Institute, the member so elected to be in addition to the 15 members of the Managing Board of the Institute, provided for under Section No. 23 of the Constitution.

The American Gas Institute further agrees that, should the Board of Directors provide for an Executive Committee, the Committee shall include one man from the Illinois Gas Association, as long as the number of Associations affiliating under this or similar agreements does not exceed six. Thereafter, there shall be on the Executive Committee at least six men, one from each of the six affiliated Associations. Should more than six Associations affiliate, the six representatives on the Executive Committee shall be chosen by the Board of Directors of the Institute in the order of the dates of affiliation, the members first elected by the State or District Associations to be retired after 2 years' service.

This agreement by either party can be terminated on 6 months' notice. (Signed) The Illinois Gas Association,
By J. H. Eustace, President.
C. H. Quackenbush, Secretary.

Agreement authorized by the Illinois Gas Association March 19th, 1907. (Signed) The American Gas Institute,
By Alexander C. Humphreys, President.
James W. Dunbar, Secretary.

Agreement authorized by the Board of Directors.

Respecting Membership.

The Executive Committee have passed upon the following applications for membership in your Association:

Applications for Active Membership.—Dues Applying to the Year 1907.

F. S. Armstrong, Supt., Macomb (Ills.) Electric Light and Gas Co.
W. I. Battin, Supt., South Station, Peoples Gas Light and Coke Co., Chicago.
F. W. Bedard, Supt., Citizens Light Co., La Salle, Ills.
A. F. Blossey, Supt., Gas and Hot Water Depts., Alton (Ills.) Gas and Electric Co.
C. W. Bradley, Engineer, Northwestern Gas Light and Coke Co., Oak Park, Ills.
H. S. Bramwell, Asst. Supt., City of Lincoln (Ills.) Gas Co.
H. F. Brisley, Supt., Meter and Street Dept., Northwestern Gas Light and Coke Co., Oak Park, Ills.
M. Britsch, Supt., Works, Northwestern Gas Light and Coke Co., Oak Park, Ills.
C. Brohl, Supt. of Distribution, Springfield (Ills.) Gas Light Co.
W. H. Brown, Sec. and Treas., Peoria (Ills.) Gas and Electric Co.
J. L. Busch, Supt., Gas Dept., Decatur (Ills.) Gas and Electric Co.
F. S. Carnes, Supt. South Division Street Dept., Peoples Gas Light and Coke Co., Chicago.
H. O. Channon, Manager, Quincy (Ills.) Gas, Electric and Heating Co.
A. A. Chichester, Supt. Street Dept. (Nor. Div.), Peoples Gas Light and Coke Co., Chicago.
J. C. D. Clark, Commercial Agent, Peoples Gas Light and Coke Co., Chicago.
W. F. Clausen, Supt., Union Gas and Electric Co., Bloomington, Ills.
M. Connors, Supt., Pitney Court Station, Peoples Gas Light and Coke Co., Chicago.
E. G. Cowdery, Vice President, Peoples Gas Light and Coke Co., Chicago.
I. C. Copley, President, Western United Gas and Electric Co., Aurora, Ills.
E. Crawford, Manager, Sterling (Ills.) Gas and Electric Light Co.
H. T. Crawford, Cashier, North Shore Gas Company, Waukegan, Ills.
S. P. Curtis, General Manager, American Gas Company, Philadelphia, Pa.
J. E. Davies, Supt., Street Dept. (Calumet Div.), Peoples Gas Light and Coke Co., Chicago.
D. Davis, Secretary, Litchfield (Ills.) Gas and Electric Co.
C. L. Day, General Supt. Street Dept., Peoples Gas Light and Coke Co., Chicago.
E. A. Dieterle, Asst. Supt., Pitney Court Station, Peoples Gas Light and Coke Co., Chicago.
F. C. Duncan, Manager, Princeton (Ills.) Gas Works.
L. B. Elliott, Asst. Supt., Street Dept. (West. Div.), Peoples Gas Light and Coke Co., Chicago.
F. J. Ely, Asst. to Gen. Supt. of Streets, Peoples Gas Light and Coke Co., Chicago.
J. H. Eustace, Engineer, Peoples Gas Light and Coke Co., Chicago.
E. W. Eustace, Supt. Gas Dept., Peoria (Ills.) Gas and Electric Co.
F. Featherly, Asst. Supt. Street Dept. (North Div.), Peoples Gas Light and Coke Co., Chicago.
G. E. Fish, Supt., Centralia (Ills.) Gas and Electric Co.
E. Garrity, District Manager (Northwestern Dist.), Western United Gas and Electric Co., Wheaton, Ills.
J. Ginley, Supt. Street Dept. (West. Div.), Peoples Gas Light and Coke Co., Chicago.
G. F. Goodnow, Gen. Manager, North Shore Gas Co., Waukegan, Ills.
A. J. Goss, Manager, Mattoon (Ills.) Gas Light and Coke Co.
H. S. Green, Manager, Morrison (Ills.) Gas and Electric Co.
R. B. Harper, Chemist in charge of Laboratory, Peoples Gas Light and Coke Co., Chicago.
H. M. Harriman, Station Supt., Peoples Gas Light and Coke Co., Chicago.
A. S. Harrington, Asst. Supt. Division Street Station, Peoples Gas Light and Coke Co., Chicago.
H. J. Herget, President, Pekin (Ills.) Light, Heat and Power Co.
F. S. Honberger, Asst. Supt. Gas Dept., Peoria (Ills.) Gas and Electric Co.
J. B. Howard, President, Gas Light Co., of Galena, Ills.
H. R. Hunt, Supt. 96th street and Erie avenue Station, Peoples Gas Light and Coke Co., Chicago.
R. J. Jenks, Supt. Evanston (Ills.) Works, Northwestern Gas Light and Coke Co.
J. F. Jones, Supt. East St. Louis (Ills.) Works, St. Clair County Gas and Electric Co., E. St. Louis.
A. W. Kendall, Asst. Sec. Rockford (Ills.) Gas Light and Coke Co.
H. B. Kirchner, Supt. Belleville (Ills.) Dist., St. Clair County Gas and Electric Co.
E. E. Downs, Gen. Mgr., Lee Lighting Co., Dixon, Ills.
A. D. Mackie, Supt. New Business, Springfield (Ills.) Gas Light Co.; Peoria (Ills.) Gas and Electric Co.
O. C. Macy, Mgr., Cairo City (Ills.) Gas Co.
J. E. J. Mayer, Chief Clerk, Enginering and Street Dept., Peoples Gas Light and Coke Co., Chicago.
R. H. McColl, Asst. Sec., Northwestern Gas Light and Coke Co., Evanston, Ills.

A. McIntyre, Supt. Blue Island (Ills.) Station, Northwestern Gas Light and Coke Co.
R. A. McLaughlin, Gen. Supt., Galesburg (Ills.) Railway and Lt. Co.
M. Morgans, Manager, Chicago Heights (Ills.) Gas Co.
S. H. Moore, Confidential Clerk to John Williamson, Peoples Gas Light and Coke Co., Chicago.
E. E. Morrell, Treas. Sterling (Ills.) Gas and Electric Co.
C. G. Munsen, Asst. Supt. Street Dept. (Calumet Div.), Peoples Gas Light and Coke Co., Chicago.
E. H. Negley, Sec., Canton (Ills.) Gas and Electric Co.
F. E. Newberry, Manager, Citizens Gas Company, Kankakee, Ills.
M. A. Norland, Asst. Engineer, Peoples Gas Light and Coke Co., Chicago.
H. L. Olds, Manager, City of Lincoln (Ills.) Gas Company.
P. O'Malley, Gen. Supt. of Works, Western United Gas and Electric Co., Aurora, Ills.
J. H. Owens, Supt., Elgin (Ills.) Works, Western United Gas and Electric Co.
F. A. Parker, Office Mgr., Galesburg (Ills.) Railway and Light Co.
H. J. Pepper, Gen. Supt., Urbana and Champaign (Ills.) Railway, Gas and Electric Co.
H. Peters, Supt., Crosby Street Station, Peoples Gas Light and Coke Co., Chicago.
L. Price, Supt., Highland Park (Ills.) District, North Shore Gas Co.
C. H. Quackenbush, Manager, St. Clair County Gas and Electric Co., East St. Louis, Ills.
D. G. Ramsay, Asst. Supt., 22d Street Station, Peoples Gas Light and Coke Co., Chicago.
W. R. Rhoades, Supt. of Mfg., Springfield (Ills.) Gas Light Co.
H. L. Rice, Gen. Mgr., Western United Gas and Electric Co., Aurora, Ills.
E. A. Robbins, Asst. Supt. (South Div.), Street Dept., Peoples Gas Light and Coke Co., Chicago.
Z. T. F. Runner, Sec. and Mgr., Freeport (Ills.) Gas Light and Coke Co.
R. K. Runner, Mgr., DeKalb County (Ills.) Gas Company.
C. Schenck, Supt. of High Pressure Dist., Northwestern Gas Light and Coke Co., Chicago.
E. G. Schmidt, Vice-Pres. and Gen. Mgr., Peoria (Ills.) Gas and Electric Co. and Springfield (Ills.) Gas Light Co.
E. E. Sidenstick, Asst. Supt. Crosby Street Station, Peoples Gas Light and Coke Co., Chicago.
K. L. Smissaert, Mgr. of Blue Island (Ills.) Office, Northwestern Gas Light and Coke Co.
M. J. Smit, Supt. Mf'g Plant, North Shore Gas Co., Waukegan, Ills.
C. C. Smith, Pres., Citizens Gas Co., of Kankakee, Milwaukee, Wis.
E. W. Smith, Manager, Kewanee (Ills.) Light and Power Co.
L. H. Johnson, Supt. of Dis., Western United Gas and Electric Co., Aurora, Ills.
R. N. Strohm, Vice-Pres. and Treas., Western United Gas and Electric Co., Aurora, Ills.
C. B. Strohm, Dist. Mgr., Elgin (Ills.) Dist., Western United Gas and Electric Co.
W. D. Sweetman, Supt. Division Street Station, Peoples Gas Light and Coke Co., Chicago.
H. S. Whipple, Manager, Rockford (Ills.) Gas Light and Coke Co.
H. T. Willett, Sec. and Treas., Springfield (Ills.) Gas Light Co.
W. A. Whitehead, Asst. Supt. South Station, Peoples Gas Light and Coke Co., Chicago.
J. Williamson, Consulting Engineer, Peoples Gas Light and Coke Co., Chicago.
W. Wilson, Supt. 22d Street Station, Peoples Gas Light and Coke Co., Chicago.
E. J. H. Wright, Sec. and Mgr., Northwestern Gas Light and Coke Co., Evanston, Ills.
W. T. Yardley, Chief Clerk, Northwestern Gas Light and Coke Co., Evanston, Ills.

For Junior Membership.—Dues Applying to Year 1907.

C. D. Slimpin, Chief Clerk, Elgin (Ills.) Dist., Western United Gas and Electric Co.

For Active Membership.—Dues Applying to Year 1908.

W. F. Barrett, Engineering Dept., Peoples Gas Light and Coke Co., Chicago.
W. L. Clarke, Gen. Mgr., City Gas and Electric Co., Paris, Ills.
N. L. Edson, Supt. LaGrange (Ills.) Works, Western United Gas and Electric Co.
J. F. Keefe, Asst. Sec., (East St. Louis Dist.) St. Clair County Gas and Electric Co., East St. Louis, Ills.
G. W. McKee, Eng. Dept., Peoples Gas Light and Coke Co., Chicago.
H. J. Mitchell, Dist. Mgr., Joliet (Ills.) Dist., Western United Gas and Electric Co.
F. E. Robinson, Dist. Mgr., Aurora (Ills.) Dist., Western United Gas and Electric Co.
F. E. Luther, Supt., Willow Street Station, Peoples Gas Light and Coke Co., Chicago.
T. V. Purcell, Com. Dept., Peoples Gas Light and Coke Co., Chicago.
E. G. Pratt, Managing and Consulting Gas Engineer, Chicago.
T. Noonan, Supt., Gas Dept., Pontiac (Ills.) Light and Water Co.
C. F. Stelzel, Asst. Sec. and Mgr., Granite City (Ills.) Gas Light and Fuel Co.
A. Sandt, Mgr., Clinton (Ills.) Gas and Electric Co.

For Junior Membership.—Dues Applying to Year 1908.

R. W. Kimball, Asst. Supt. Elgin (Ills.) Works, Western United Gas and Electric Co.
R. H. Whipple, Accountant, Kewanee (Ills.) Light and Power Co.
V. A. Houghton, Asst. to Supt., Joliet (Ills.) Works, Western United Gas and Electric Co.

The above gentlemen are recommended for election.

EXECUTIVE COMMITTEE RECOMMENDATIONS, NEW MEMBERS.

CHICAGO, ILLS., March 26, 1908.

Gentlemen: The Executive Committee have approved the applications of the following gentlemen for active membership in your Association and recommend them for election.

Active.

W. J. Achelpohl, Auditor, Western Railways and Light Co., Ottawa, Ills.
W. E. Barrett, Engineer, Peoples Power Co., Moline, Ills.
L. L. Bennion, Auditor, Illinois Light and Traction Co., Streator, Ills.
A. H. Gross, Pres., Sterling Gas and Electric Light Co., Nat. Gas and Water Co., 184 La Salle street, Chicago, Ills.
F. M. James, Chief Accountant, Western United Gas and Electric Co., Aurora, Ills.
H. R. Kingman, Sec. and Treas., Citizens Gas, Electric and Heating Co., Mt. Vernon, Ills.
H. I. Lea, Gas Engineer, No. 616, The Rookery, Chicago, Ills.
J. T. Lynn, Vice-President, Quincy Gas Electric and Heating Co., 402 Union Trust Bldg., Detroit, Mich.
O. Mattison, Supt. Cairo City (Ills.) Gas Co.
J. A. Meyers, Pres. and Manager, Galva (Ills.) Gas Lt. and Coke Co.
A. C. Murray, Supt. North Shore Gas Co., Libertyville, Ills.
W. L. Powers, Supt. U. and C. Ry., Gas and Electric Co., and Decatur (Ills.) Railway and Light Co.
I. Rew, Vice President, De Kalb Co. (Ills.) Gas. Co.
R. Schenck, Chief, Drafting Dept., Peoples Gas Light and Coke Co., Chicago.
C. E. Sharpe, Vice-Pres. and Mgr., Peoples Power Co., Moline, Ills.
C. H. Sidenglanz, Supt. Com. Dept., Rockford (Ills.) Gas Light and Coke Co.
W. D. West, Gen. Supt., Federal Gas Corporation, 522 First National Bank, Chicago.

Associate.

C. F. Asendorf, Western Representative, Maryland Meter Co., 1307 Railway Exchange Building, Chicago.
L. S. Bigelow, Light Publishing Co., 265 Broadway, New York.
A. Bradley, Chicago Manager, Power Specialty Co., Chicago.
J. C. Buckley, Travelling Salesman, Geo. M. Clark Co., 82 Michigan avenue, Chicago.
A. Court, Sec. and Treas. Gas Bench Construction Co., Metropolitan Building, St. Louis, Mo.
A. D. Cressler, Pres., Kerr Murray Mf'g Co., Fort Wayne, Ind.
G. H. Cressler, Sec. and Asst. Engineer, Kerr Murray Mf'g Co., Fort Wayne, Ind.
C. E. Draper, Travelling Salesman, Estate Stove Co., Hamilton, O.
C. E. Ummach, Sec. and Treas., R. Williamson & Co., 88 to 92 Washington street, Chicago.
W. P. Fairbairn, Dist. Sales Mgr., Humphrey Co., Kalamazoo, Mich.
C. H. Fritsch, Salesman, Parker-Russell Mining and Mf'g Co., Liggett Building, St. Louis, Mo.
H. C. Fritz, Mgr., Schneider & Trenkamp Co., 250-52 Wabash avenue, Chicago.
H. D. Harper, Mgr., American Meter Co., 99 Jefferson street, Chicago.
W. P. Hutchinson, Salesman, The Sprague Meter Co., Marion, Ia.
W. F. Hyde, Sec. and Treas., Milwaukee, Wis.
E. D. Johnston, President, P. H. & F. M. Roots Co., Connersville, Ind.
L. Kahn, Vice-President, Hamilton, O.
B. G. McNabb, Salesman, General Gas Light Co., Kalamazoo, Mich.
R. L. Morley, Western Manager, Michigan Stove Co., 256-262 South Clinton street, Chicago.
R. Mueller, Secretary, H. Mueller Mfg. Co., Decatur, Ills.
G. A. Myers, Manager, Aurora, Ills.

W. B. Osborne, Gas Eng., Riter-Conley Mfg. Co., Pittsburgh, Pa.
J. F. Parker, Sales' Manager, Rockford, Ills.
F. R. Persons, Maryland Meter Co., 1503 Adams street, Toledo, O.
R. W. Polk, Gas Eng., Laclede-Christy Fireclay Products Co., St. Louis, Mo.
M. G. Reynolds, President and General Manager, Reynolds Gas Regulator Co., Anderson, Ind.
G. D. Roper, President, Eclipse Gas Stove Co., Rockford, Ills.
D. R. Russell, President, Parker-Russell Mining and Mfg. Co., Liggett Building, St. Louis, Mo.
E. J. Seeley, Salesman, Welsbach Co., 68 Wabash Ave., Chicago.
J. C. Smith, Representative, Western Roofing and Supply Co., 177 Randolph street, Chicago.
W. S. Smith Vice-President, 875 South Halsted street, Chicago.
A. L. Smyley, Western Manager, Connelly Iron Sponge and Governor Co., 295 S. 22d street, Chicago.
B. H. Spangenberg, Gen. Manager and Engineer, Rotary Meter Co., 280 Broadway, New York.
W. E. Steinwedell, Secretary, the Gas Machinery Co., 715 Citizens Building, Cleveland, O.
S. S. Stratton, Chicago Agent, Maryland Meter Co., 1307 Railway Exchange, Chicago.
V. P. Wilkins, Gen. Supt., La Porte (Ind.) Gas Meter Co.

Unfinished Business.

The Secretary—Mr. President, I believe we have some unfinished business from last year that can be taken up first. It is in connection with the question of associate membership.

Mr. Rice—Gentlemen, at the last meeting of the Association notice was given of a proposed amendment to the by-laws to take in a new class of membership to be known as Associate Members. I will read the change in the form that has been approved by the Executive Committee:

Resolved: To make the present By-Laws of the Illinois Gas Association read as follows:

Section 3.—Membership: Membership in the Association shall be of three classes: Active, Junior and Associate.

A. Any man actively engaged in a position of responsibility with any gas company or in professional gas consulting work in the territory covered by this Association shall be eligible as an active member.

B. Any man engaged as a minor employee with any gas company in the territory covered by the Association shall be eligible as a junior member.

C. Any man connected with the gas supply industry, doing business in the territory covered by this Association, shall be eligible as an Associate member.

It shall be the duty of the Executive Committee to determine to which class any applicant is eligible to join.

Members of any class shall be elected only by a majority vote of the Association, after formal approval of each application by the Executive Committee.

That is the gist of the change proposed. Because of the bringing in of the word "associate" and the changing of the word "member" to "active member," the phraseology of other sections has been changed to correspond. Section four is therefore changed to read:

"*Section* 4.—Voting: All active members, not in arrears for dues, may be present and participate in the discussions and proceedings of any regular or special meeting, and may vote on all questions excepting such questions as concern the welfare of the companies in the territory covered by this Association as a whole, on which questions the voting power shall be vested solely in the companies, each company to designate one authorized active member with such voting power."

Junior members and Associate members, not in arrears for dues, may be present and participate in the discussions and proceedings of any regular or special meeting, but may not vote.

The only change is to add the term "associate members."

"*Section* 7.—Dues shall be $5 annually for Active and Associate members, and $2 annually for Junior members. The year of the Association shall begin the first day of April. The annual dues shall be payable by the members to the Secretary on or before August 1st of each year." The only change is the word "associate."

"*Section* 9.—Quorum: A. Eight active members shall constitute a quorum for the transaction of business at any annual or special meeting."

The former section read "members present." I offer this as a resolution.

Upon motion, duly seconded, the resolution was unanimously adopted.

Additional Report from Secretary.

The Secretary—Gentlemen, there is not a great deal to the report. There are several points of interest to you and that will cover it. As has been customary the Association has sent to the officers of various kindred Associations an invitation to attend this meeting. We have had many replies and all are most cordial in expressing the best of good wishes. I will simply read the writers' names: Dr. Alexander C. Humphreys, President, American Gas Institute; Henry L. Doherty, Vice-President, American Gas Institute; Frank W. Frueauff, President, National Commercial Gas Association; L. S. Bigelow, Secretary, National Commercial Gas Association; George G. Ramsdell, Secretary, Society of Gas Lighting; V. R. Lansingh, General Secretary, Illuminating Engineering Society; George H. Jones, Secretary, New York Section Illuminating Engineering Society; R. C. Ware, Secretary, New England Section Illuminating Engineering Society; Joseph D. Israel, Secretary, Philadelphia Section Illuminating Engineering Society; N. W. Gifford, Secretary, New England Association of Gas Engineers; J. C. McDowell, President, the Natural Gas Association of America; J. H. Dunkel, Secretary-Treasurer, the Natural Gas Association of America; C. O. G. Miller, President, Pacific Coast Gas Association; J. M. Britton, Secretary, Pacific Coast Gas Association; C. L. Brown, President, Kansas Water, Gas and Electric Association; James D. Nicholson, Secretary and Treasurer, Kansas Water, Ges and Electric Association; Jansen Haines, President, Iowa District Gas Association; G. I. Vincent, Secretary and Treasurer, Iowa District Gas Association; H. T. Edgar, President, Southwest Electrical and Gas Association; R. B. Stichter, Secretary, Southwest Electrical and Gas Association; Alonzo B. Ewing, Secretary and Treasurer, Michigan Gas Association; Charles B. Chapin, Secretary, Empire State Gas and Electric Association; William E. McKay, President, Guild of Gas Managers of New England.

I also have just received a telegram from our former Secretary, Mr. Robb, which reads: "Accept my sincerest wishes for a most successful meeting." I am sure you will all be interested to know that Mr. Robb has been regaining his health, as he expresses it, much more rapidly than he had any right to expect.

At the last meeting the Executive Committee were authorized by vote of the Association to make any arrangements necessary to affiliate with the American Gas Institute. This affiliation is now complete. The affiliation agreement has been signed by the officers of both Associations.

The President—Gentlemen, you have heard the report of the Secretary-Treasurer. What is your pleasure? [On motion, duly seconded, the report was accepted and ordered filed.]

Election of New Members.

The President—Now, the applications which have been read for active membership and approved by the Executive Committee will need to be ratified by the Association. What is your pleasure? [On motion, duly seconded, the membership list was unanimously ratified as read.]

Vice-President Runner was then called to the Chair, and President Eustace read the

INAUGURAL ADDRESS.

[For the text of the address by President Eustace, see Journal, *ante*, page 577.]

Committee on President's Address.

Vice-President Runner appointed as a Committee on the Presidents' Address, Messrs. E. J. H. Wright, H. S. Whipple and E. G. Cowdery.

Other Committees Appointed.

The President resumed the Chair and announced the appointment of the following Committees:

Place of Next Meeting.—Messrs. H. L. Rice, C. B. Strohn and E. H. Negley.

On Nominations.—Messrs. Z. T. F. Runner, Geo. Goodnow and J. B. Howard.

The Secretary—I have just received a telegram from Mr. Olds, a member of our present Executive Committee, addressed to the Secretary: "Success to the best State Association in the country. Will be with you this evening."

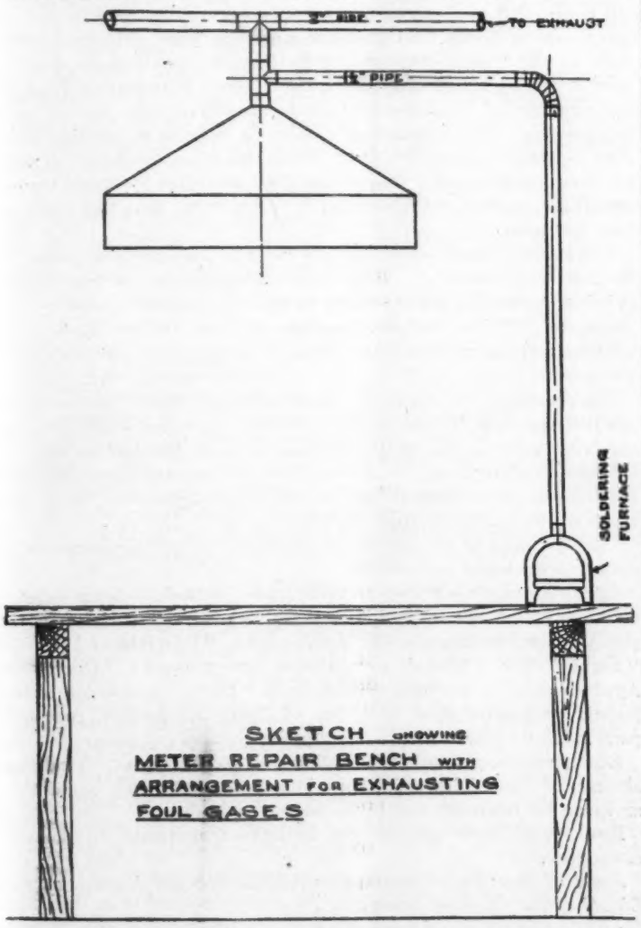
[To be Continued.]

Meter Shop Practice.

[A paper prepared by MR. C. L. DAY, Gen. Supt., Street and Meter Dept., Peoples Gas Light and Coke Company, Chicago, Ills., for the Fourth Annual Meeting, Illinois Gas Association.]

The oiling table should be arranged so that oil, before being used, can be heated, and after being used can be drained into a tank. An oil purifier should be provided, and all oil previously used should be purified.

Shop Equipment.—In the shop proper, sheet iron pans should be used for draining meters, in order that no gas oil or condensation may come in contact with floor. These cans are to be emptied daily and washed with hot lye once a week. The floor of the shop should be of hardwood to facilitate scrubbing. In addition to arc lamps for general lighting of shop, swing brackets over each bench, arranged so that the light will be thrown directly over meter, should be provided.



SKETCH SHOWING METER REPAIR BENCH WITH ARRANGEMENT FOR EXHAUSTING FOUL GASES

Temperatures.—The water in provers should be kept at shop temperature by means of hot and cold water connections. Meters to be tested should always be kept in shop long enough for them to acquire the temperature of same.

Bench Equipment.—An economy is effected by the use of air pressure on the furnace, in combination with automatic shut-off devices on same. Good results are obtained with air at 1½ pounds and gas at 30-tenths pressure. The automatic shut-off reduces the flame to a pilot light by the withdrawal of the irons from the fire by reason of their weight resting on a lever. Observation shows that a good proportion of a meter repairer's time is taken up by parts of his work which do not require the use of his irons. Hoods should be placed over drip pots to prevent spattering of sal ammoniac water.

Provers.—Provers should be connected in pairs to facilitate rapid work, so that one prover may be in use while the other is being filled. They should be connected both to gas and compressed air lines, the compressed air doing away with the old and laborious practice of raising holder by hand.

Badging.—A system of badging all meters should be adopted, and a brass strip, ½ inch wide and 2 inches long, soldered to upper left hand corner of meter, will be found a convenient form. In the case of new meters, initial N, "new," and date of test should be stamped on badge. On meters that have been repaired a letter representing the nature of the repairs, the date work was done and the meter repairer's number should be given. These not only give a record of the life and repairs of the meter, but act as a check of the efficiency of the repairer's work. The following is an excellent classification for badging:

Letter.	Indicates.	Work Done.
E.	Examination and test.	Examination of meter.
P.	Partial repairs and test.	Grinding valves, packing boxes cleaning movement, inside and outside leaks.
G.	General repairs and test.	Oiling diaphragms, grinding valves, packing boxes, cleaning movement, inside and outside leaks.
D.	General repairs with new diaphragms and test.	New diaphragms, grinding valves, packing boxes, cleaning movement, inside and outside leaks.
N.	New meters.	
T.	Testing.	

Capping Meters.—Fitters, when removing meters, should always cap or cork meter tubes to prevent the action of the air on diaphragms, which dries up same, and may cause any gum present to solidify. By this means the inside of the meter is kept as nearly as possible in the same condition as when used by the consumer.

Card System of Record.—A card system of meter record should be used. A card should be attached to meter by fitter removing same. On this card should be stated meter number, size, index, location of meter, reason for removal, fitter's name and date. At the bottom should be a space for test; on the reverse side a space for record of repairs given the meter. Test and condition of each meter when brought into the shop should be noted on this card, and record of repairs filled in after repair of meter is complete.

Meters should be taken off wagons by night force, and cards checked with meters and work tickets. A record should be kept showing size, number and indexes of all meters brought in and sent out.

Bench Work.—We now reach the consideration of work at the bench. Meters should be proved and distributed into their respective classes, as follows:

Class 1.—Meters that have to be repaired, regardless of test, are those which are over 2 years old, and have not been repaired within that time. These are tested and the result is recorded on card. If meter is found to run less than 10 error, it is put in the repair pile, if more than 10 error, see class 3. Meter clerk then takes these meters to stripping room. Here tops, valve plates, valves and indexes are removed. Diaphragms are inspected by diaphragm inspector to determine if new ones are necessary. If diaphragms are found "O. K." after leathers and inside of diaphragm chambers have been thoroughly cleaned, they are oiled. Those not passing inspection are removed and meter is put in lye tank and washed. All cases, valves, etc., are washed in lye and cases tinned. All parts removed are numbered in such a fashion that they may be replaced in meter from which they were taken. These meters are now ready to be distributed in batches of 10 to the meter repairers. A record is kept of the time when each batch is given to the repairer. The meter repairer first examines all diaphragms that have been passed as "O. K." He then tests for tightness by closing the ports with putty and pressing down diaphragms. If leak is present, meter is placed on its side, chamber filled with water and pressure put on diaphragm, thereby locating leak by bubbles which appear. In case defective diaphragms are found, meter is taken to foreman, who returns it to stripping room to have diaphragms removed. All meters that are found "O. K." by this test are tinned and cleaned and shellac on strings and grease on seams used if necessary.

All working parts are put in good condition—cases put on, care being taken that they are properly fitted before being soldered. Cases are then soldered on, stuffing boxes packed, valves ground, and valve plates soldered in. Care should be taken that all old yarn is removed from stuffing box and the best Germantown yarn, thoroughly soaked in a solution of mutton tallow, lard, oil and beeswax, is used in repacking. In grinding valves the dry grind (given with emery cloth) is recommended. This grind gives a smooth dry surface and causes very little trouble from grit. All dust arising from this process is

blown out by the use of bellows. The meter repairer then puts in index which has been examined by index inspectors. After adjusting flag arms, putting in the spindles and connecting same to indexes, repair badges are put on. Ticket is then made out by meter repairer showing number of meters repaired, time for doing work, material used and classification of repairs. Meters are then taken by shop boy to inspector to be gassed and examined. They are tested for outside leaks under a pressure of from 16 inches to 60 inches and for inside leaks, such as diaphragms, channel or valve leaks, under a pressure of 6 inches; also, tested on the four points for registration on small flame. If found leaking, location of leak or defective part is marked on meter and it is returned to the bench. Meter is given a very careful general examination. Soldering is looked over, stuffing boxes inspected and spindle and indexes examined to see that spindle does not bind on worm or index. Index is set to agree with reading taken when meter is brought into shop. When this inspection is completed, card is taken from file and marked "O. K." by gasser and attached to meter to be filled out by prover. Meter is then adjusted on both an open and closed test to 100. It is then topped, painted, capped and put in stock ready to be set. Returning to those meters which require new diaphragms, as determined by examination in stripping room, these meters have new diaphragms inserted and follow the same course described above.

Class 2.—Meters less than 2 years old or meters that have been repaired within that time. These meters are given both open and check test. If found correct, the meter is given to the inspector to be subjected to a pressure of from 16 inches to 60 inches, to find out if meter is tight. Any leaks which may be found are repaired by him. The examination badge is then put on and the meter painted. It is then put in stock ready to be set. In case a meter in this class does not run correctly, the top is taken off and the meter is properly adjusted. Top is then replaced, examination badge put on and meter painted. It is then ready to be put in stock to be set.

Class 3.—This includes all meters for special test and those running over 10 error, as referred to in Class 1. The special tests are required by the bookkeeping and inspection department, and a most careful examination of these meters is made. Meters in this class are tested and tests put on the card. If meter for special test registers correctly, a 4-foot burner is placed on the outlet as a further proof; if correct, the card is so marked. If the meter does not register on a 4-foot burner, it is then ascertained how much gas the meter will pass without registering. All these meters are stripped and examined to find out why they do not register. Whether test shows correct or not, they undergo the examination to see if they had been tampered with in any way or to discover if possible if the meter was passing gas and not registering when it was set. A test ticket is then made out, and the test with all conditions is put on the ticket and card. After examination, meters follow course as described under class one.

Class 4.—This includes meters new and repaired received from the meter manufacturers. The meter is tested and if found correct it is ready to be set. If any defects are found, meters are returned to manufacturers.

Class 5.—Condemned meters. Meters should be condemned when the case is badly rusted, damaged by fire or other causes, so that the expense incurred in repairing the meter would not be warranted. Upon stripping these meters any parts in good condition should be saved, to be used in repairing other meters.

Index Inspection.—It is good practice to have an inspector examine all indexes. It is his duty to see that no teeth or pinions are broken or bent, and that no solder or other substance is in the gear wheels, and that indexes are set in the proper proportions. He should also see that proper size indexes are used, and that all parts of the same are of the correct size.

Diaphragms.—When inserting diaphragms care should be taken that leather clears the bottom of the meters, as the surface of the tin is often very rough, and if leather comes in contact with it the diaphragms will quickly wear out. Leathers have been found worn through after being in use 1 year. We find in this connection that diaphragms in a 10-light meter have always been too large and that their action or movement has been hampered, due to the fact that the diaphragm did not have room enough to expand properly, and was consequently slow moving. A 10-light diaphragm ¼ inch smaller in diameter than the one generally used will give better satisfaction. A good diaphragm oil is a combination of equal parts of neatsfoot, sperm and rapeseed.

Care in Handling Meters.—Foreman of shop should insist that meters be handled with care, to avoid bumping on floor, truck or bench, and consequent damage or disarrangement of adjustment, etc. Attention to this results in a uniform, careful and gentle handling of meters by all concerned, from prover to paint bench and stock.

Elemental Engineering Education for the Student of Gas.

Prepared for the JOURNAL by MR. H. THURSTON OWENS.

That those who have not been fortunate enough to obtain a college education, but nevertheless may acquire the requisite knowledge to fill responsible engineering positions, is exemplified in almost every gas company to-day. In the past engineers were only found necessary in the manufacturing and distribution departments; but the field is rapidly broadening and we now have illuminating engineers and commercial developers, who must also have some knowledge of engineering. The titles are only assumed, to be sure, but that which they represent has come to stay. There are many methods by which the younger generation may secure the knowledge to enable them to acquit themselves creditably, and it is for them that this paper has been prepared.

The general conditions in the gas business were probably never better than they are to-day. The never-ending clamor for cheaper gas is being quieted, on the one hand by that new factor in our government, the "Public Service Commission," and on the other by the continuing progressive attitude towards the public of the companies themselves.

The companies have begun to completely realize that increased sales are perhaps more important than lowered manufacturing costs, for the latter have surely been closely looked to in the last decade, and in order that this result be accomplished the personnel of the sales' department must include men with some engineering ability and much of the quality of salesmanship.

The field may be divided into three classes: The trade journals, association work and instruction.

Trade Journals.—There are three trade journals published in this country, which are devoted to the gas business more or less exclusively; THE AMERICAN GAS LIGHT JOURNAL, "Progressive Age" and "Light." The JOURNAL is published every week; "Progressive Age" appears twice each month, and "Light" comes out once a month. Subscribe to at least two of them, and see that your company takes the third.

Read them for general information, but do not neglect to make an abstract of the articles which contain reliable data; and, in addition, an index for reference will be found very valuable.

Read the advertisements as well as the reading matter and send for catalogues.

Some of the larger companies subscribe for the *Journal of Gas Lighting* and *The Gas World*.

An illustration of the broadening field is the advent of magazines devoted exclusively to problems of illumination and cover a field which is daily becoming more important. Others cover the power field which is older and in some respects better understood.

Bulletins.—There are several sources from which bulletins may be obtained free of charge. The most valuable for the gas man are the bulletins issued by the Welsbach Company, as these contain not only readable descriptions, but also valuable data on costs.

The Holophane Company issues a monthly bulletin exploiting the prismatic glassware which is its specialty. The practice of gas companies issuing bulletins for their customers is too well known to need more than passing mention.

Among the many blessings of a successful government are the bulletins issued by the Department of Commerce and Labor, among which may be found the "Statistics of Cities," reports on "Municipal Ownership," "Illumination," etc.

Among State reports those of the Massachusetts Board of Gas and Electric Light Commissioners easily rank first, and proof of this can be found in the numerous quotations made from them during legal proceedings as to lighting matters in other States; reports from the Public Service Commission, of New York, and of the Railroad Commissions of Wisconsin and Georgia. While these are not generally available as yet, they will undoubtedly be so soon. They certainly contain much that is interesting and helpful on opinion based on their reporting of the initial cases that have come before them. As it is quite important that we know what is being done by our competitors, the bulletins issued by "The National Electric Lamp Association" and "The General Electric Company," should be obtained.

Association Work.—Association work among the electric interests has developed to a much larger extent than among the gas fraternity. The monthly meetings held in many of the large cities by the various chapters of "The American Institute of Electric Engineers" is in great contrast with the yearly meetings of the Gas Associations. There are two Gas Associations whose scope is national, the American Gas Institute and the National Commercial Gas Association. The former is strictly an engineering body, while the latter's work is wholly along commercial lines, as its title indicates. The New England Association of Gas Engineers (really the pioneer Association in the States) holds its main work in connection with the gas industry of the New England States; but its tuitive features are really national in scope; as is its spirit, too.

The immediate benefit of membership in either of these Associations is largely a matter of individual effort, as in other things, but the writer cannot urge too strongly membership in at least one of them. A complete list of all Associations in which gas men are interested is given below:

NATIONAL.

American Gas Institute.
National Commercial Gas Association.

SECTIONAL.

New England Association of Gas Engineers.

STATE AND DISTRICT.

Illinois Gas Association.
Michigan Gas Association.
Pacific Coast Gas Association.
Empire State (N. Y.) Gas and Electric Association.
Iowa District Gas Association (organized this year).
Southern Gas Association (organized this year).
Wisconsin Gas Association.
Kansas Gas, Water and Electric Light Association.
Southwestern Electrical and Gas Association.
Missouri Electric Light, Gas and Street Railway Association.
Oklahoma Electric Light, Railway and Gas Association.

SOCIETIES.

Guild of Gas Managers.
Society of Gas Lighting.
Illuminating Engineering Society.

MISCELLANEOUS.

Natural Gas Association.
American Institute Mechanical Engineers, Gas Power Section.
International Acetylene Association.

In the growing field of Association work a recent addition is the Illuminating Engineering Society. Although an engineering body, the membership is open to all who are interested in illumination, and it includes among its members gas and electric engineers, architects, fixture dealers, etc. It has attained a very prominent place in a remarkably short time, having a membership of nearly 1,000. A very attractive feature of this Society is the fact that the work is carried on by sections, and monthly meetings are held in Boston, New York, Philadelphia, Pittsburgh and Chicago.

The latest addition to the list of Associations is the Gas Power Section of the American Institution of Mechanical Engineers.

Meetings among employees are increasing in popularity, but the sessions are usually only open to the employees of the individual company.

Among the larger companies whose plants are located in various cities the practice is to have a yearly convention.

INSTRUCTION.

The correspondence course provided through the generosity of our fraternity, known as the The American Gas Light Association, *easily ranks first* in furnishing a method of obtaining a gas engineering education. It is open to all employees of gas companies, provided they are not college graduates, and no charge is made for tuition in the course. The subjects covered are manufacture and distribution, and the period required to complete the course is 3 years. No other correspondence course can be recommended by the writer.

A method of obtaining information on technical subjects has recently been established by the American Gas Institute, known as the Bureau of Information. Members who desire information send their requests in the form of a question, which are published in the trade journals, so that anyone familiar with the subjects may reply, and later on the correct answers are published.

If you are not a member of the Institute, however, and desire information, send the question to the AMERICAN GAS LIGHT JOURNAL, where it will be welcomed and answered with pleasure. By doing this you will aid many others as well as receiving an authoritative answer to your question.

That practical experience is a successful instructor goes without saying; but there are many ways of utilizing the knowledge thus gained. For instance, if you are interested in a certain subject, and thoroughly understand the conditions obtaining in your city, compare these with your neighbor's, and then with other cities, where special problems have been encountered and the result published.

Text books are a necessity and among those which should be available are Hornby's "Gas Manufacture for Students;" "Gas Distribution," by Walter Hole; "Gas Engineers' Handbook," by Latta; "The Gas Engineer's Pocket Book," by O'Connor. Also, that best of all, "Newbigging's Handbook."

The education referred to in the foregoing is quite general in character and might be considered under the head of distribution. In the now distant past gas companies were content to sell gas as such, but the more progressive men long ago realized that what the consumer wants is service, and so the plans have been well formulated to sell illumination, heat and power.

The fact that electric light is used to such a large extent in the better class of stores is mainly due to the efforts of the electrical interests rather than to the superiority of that illuminant. Their position is far from secure, but much greater knowledge and ability are necessary among the sales forces of the gas companies in order that gas installations will increase as rapidly as is their due.

Knowledge of illuminating engineering must be obtained to a large extent through individual application, as regular instruction is not available.

The proper regard for this subject is vital when the future of gas lighting is considered. Illuminating engineers are employed by the United States Government and by a great many electric lighting companies.

Gas has a great advantage over other illuminants in respect of cost and the quality of the light; but it depends upon the man behind to see that installations are properly made. Two text books have been published which should be available: "Bell's Art of Illumination," and "Practical Illumination," by Cravath-Lansingh.

Ten years ago probably not more than 15 per cent. of the gas sold was used for fuel purposes, to-day it is all of 35 per cent., and in some companies that figure is far short of the mark. Apropos of this the reader is referred to the address[1] by Mr. W. J. Clark, who retired from the post of President of the National Commercial Gas Association last January.

The sale of gas for heat and power is still in its infancy, despite the tremendous strides which have been made during the past decade. The most valuable information on this subject is available through the Trustees' Course, the manufacturers of appliances and the various papers presented at association meetings. The "Progress Department" record of (1906) the Ohio Gas Light Association, should by all means be available. Also, the very valuable lecture on "The Hygienics of Gas," by Prof. V. B. Lewes, which was published in the JOURNAL, August 5, 1907.

The number of text books on the subject of heat and power are much more numerous than those regarding illumination and among them may be mentioned Roberts "Gas Engine Handbook." Among papers may be mentioned those by Prof. Lucke, on "Gas Engine Operation," before the American Society of Mechanical Engineers.

Gas is far from being at its final developmental stage. It is a real, live member of the family of public utilities and its future will dwarf its past.

Solving Some Power House Problems.

[By MR. GEO. W. MARTIN, in *Elec. World.*]

As in every other line of work, the things that go to make up the daily routine of a power house are not altogether the great problems, but rather the small details which occupy a considerable part of an engineer's time. One of the questions which are always of interest in a plant that is run condensing, is how to remove the oil from the condensed steam if it is desired to return the latter to the boiler. Some engineers shun an oil separator as they would the smallpox, and are content to allow the condensed steam to go to waste rather than run what to them is the risk of the oil getting into the boilers and causing considerable damage.

On the other hand, the experience of others has been that oil may

[1] See JOURNAL, *ante*, p. 234.

be removed from condensed steam in an entirely satisfactory manner, and one quite often reads letters in the technical press from engineers who themselves have constructed oil separators which served the purpose in every respect. It is with some of these "home-made" devices that a part of this article will concern itself.

One arrangement which the writer has met with consists of two oil barrels joined together with a nipple at the bottom of the sides, as shown in Fig. 1, in this case the pipe being 4 inches. To one side of

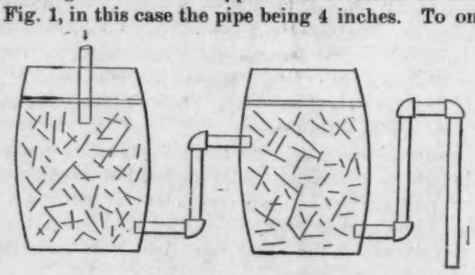


Fig. 1.—Oil Separator.

the second barrel, as shown, a "goose neck" is fixed. Both barrels are two-thirds full of straw. The action of this oil separator is as follows: The water from the condenser empties into the first barrel, both barrels filling up to the level of the top of the goose neck. The oil will, of course, rise to the top of the water, but the straw is used as an additional safeguard to catch the oil and prevent it flowing with the water from one barrel to the other, and out of the goose neck.

The object of the goose neck, as will be seen, is to keep the oil up as far as possible from the outlets of both barrels. As the oil accumulates it is skimmed off the top of the water. The straw may be renewed every month, or as often as experience proves it necessary. Adding another barrel, with the goose neck on the third barrel, will, of course, make a longer path for the oil to travel, and also give it another place to rise to the surface of the water. This may be necessary in certain sized plants, but the two barrels will be found quite ample to take care of the water from a 1,000,000-gallon Worthington pump.

Should additional barrels be used, the arrangement would closely resemble another design of oil separator which has proved itself reliable. This is shown in Fig. 2, and consists of a tank divided into a

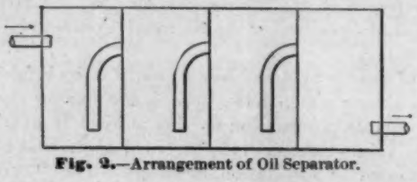
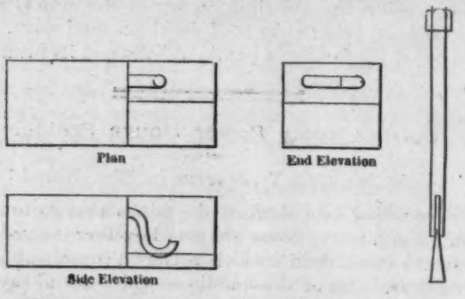


Fig. 2.—Arrangement of Oil Separator.

number of compartments, one being connected to another by a goose neck. Here, as in Fig. 1, the water rises in each compartment to the level of the goose neck, the oil rising to the top and being either drained or skimmed off. The effect of the several compartments is to give the oil a greater chance to rise through the water to the level in each compartment.

Another design, which employs the same principle involved in Figs. 1 and 2, is shown in Fig. 3. A tank is divided into three compart-



Figs. 3 and 4.—Oil Separator and Expansion Bolt.

ments, the partition between the first two ending a short distance—3 inches or so—above the bottom, thus connecting the two compartments. The third compartment is connected with the second by a goose neck, as shown. The water enters the first compartment, the oil rising to the level of the goose neck, and lhe water in the second compartment also floats whatever oil may have come over from the first compartment. The upward turn of the goose neck at the bottom is to prevent any of the water from the first compartment flowing directly into the goose neck. In all the separators described, one of the chief points to be considered in their construction is to prevent a direct flow of water from one compartment into another. The path of the water must be as broken and indirect as possible to give the oil ample opportunity to separate from the water.

Another matter of interest to an engineer is how to prevent water hammer in a pump. More than one experienced man has had reason to remember the time and energy spent in trying to stop this trouble, yet the remedy is a very simple one. The difficulty is overcome merely by placing a petcock in the suction of the pump, leaving it open enough to admit a sufficient amount of air to cushion the strokes of the piston. If the size of the suction is below 8 inches, a ⅛-inch cock may be found large enough. For larger sizes a ¼-inch cock may be necessary. In some cases a ¼-inch petcock wide open has quieted a pump which before defied all efforts to remedy the trouble.

Still another "kink" is the use of wire screening, commonly known as "mosquito wire," to reinforce gaskets and prevent their blowing out of flanged steam joints. The screen is for use with any of the several varieties of packing similar to "Rainbow," and is placed in the joint on both sides of the gasket, holes being cut in it similar to those in the gasket. When the bolts are tightened up the screen is pressed into the packing and serves to hold it together. With this arrangement the blowing out of a gasket is practically impossible with any of the pressures in common use.

A "home-made" expansion bolt is another item which has served its purpose well. It consists merely of a piece of round steel of the desired diameter and length, threaded at one end, a slit being cut in the other end for a distance of about 2 inches. A wedge is also provided, made of machine steel, about the same length as the slit in the bolt, the wide end being about ⅛ inch, or just enough to spread the end of the bolt to make it hold.

To set the bolt, it is placed in the hole in the wall, foundation or other masonry, the wedge being first driven in just enough to hold it, and a piece of lead is placed on the top of the bolt to receive the blows of a hammer. The bolt is then driven down, the wedge being forced into the slit, thus spreading the bottom apart and binding the bolt in the hole. This kind of expansion bolt could not, of course, be used above ⅜ or ½ inch in diameter, or in cases when the shock of driving it would injuire the foundation or wall.

A Street Removed and Replaced in New York.

The excavation shown in the illustration is one of the results of the

Thirty-Second Street (S. S.) Looking West from Fifth Avenue.

large amount of tunnel work now under construction in New York. The Pennsylvania Railroad is constructing a tunnel under the thoroughfare shown, and the street has settled so much as to make necessary a thorough overhauling of the gas mains. The Consolidated Gas Company has one 20-inch, one 16-inch and two 6-inch mains here, and in order to do the work properly all of the earth above the level of the mains and from the curb to the center of the street, was removed.

The writer lives a few hundred feet away on the same street and has become an "early riser" owing to the blasts. If the gas mains are shaken as severely as the writer has been, more of them will soon need attention.—"O."

Changes in Engineering Curricula of Columbia University.

In 1907 Columbia University revised the entrance examination requirements for its Schools of Mines, Engineering and Chemistry by simplifying them and co-ordinating them with the programmes of the best secondary schools. By the adoption at the same time of a uniform programme of studies for the first year in all courses, students were no longer compelled to make up their minds at the outset as to the particular course they desired to take, and it became much easier for college graduates to enter the schools with adequate credit for advanced standing. Following these steps have come the co-ordination and revision of the three subsequent years of each of the courses. This revision, which has been the subject of consideration by the committee on programme of studies and by the officers of instruction concerned, has just been formally adopted by the faculty at its March meeting and will go into effect on July 1, 1908, and it is believed that the result will be to strengthen very considerably the work of the schools.

In the first place, the programmes have been thoroughly co-ordinated by cutting out such duplication of instruction as has grown up in the development of the several departments, and courses whose value has been lessened by changes in actual professional methods have been replaced by subjects of greater value to the professional students of to-day. Throughout, the inter relations of lecture and recitation work with practical work in the laboratory have been carefully considered.

Secondly, the work in many subjects has been made more intensive, and as a result it has been possible to reduce the total number of attendance hours in such courses. For example, calculus is to receive 5 hours weekly during the first half-year instead of 3 hours during the year, and the same change is to be made in the important courses of analytical mechanics and resistance of materials. These three fundamental courses must be taken by all professional students. A somewhat similar change has been made in the geological and mineralogical courses, which form an important part of the work in mining engineering and in other courses.

Thirdly, the free time created by this work of excision and condensation will make possible the introduction of important new material. For example, new courses in gas power and steam power machinery, and in alternating current laboratory practice have been introduced in the third-year course in mining engineering. This work has also been introduced into the course in metallurgy, and, in addition, work in mining law and in hydraulics.

Courses in excavation and tunneling, in dynamo and motor practice, and in electrical distribution, are added to the course in civil engineering, and the theoretical work in geodesy is moved from the fourth to the third year.

The programme in electrical engineering will contain courses on steam turbines and machine design in the fourth year, and a new 3-hour course in economics in the third year. The course in mechanical engineering will have additional work in machine design, in the design of manufacturing plants, in metallurgy, in shop organization and works management, and the courses will be further broadened by instruction in industrial law and economics. In the fourth year of the course in chemical engineering provision is made for additional work in electrical and mechanical engineering by the transfer of certain courses previously offered in that year to the second and third years.

The results of the change in entrance requirements and the uniform first year have been most satisfactory to the schools, the total of new students in 1907-08 being 239, as against 162 in 1906-07, a gain of 47½ per cent., and the number of entrance conditions carried by students being reduced 62 per cent., and the number of term conditions 43 per cent. It is expected that the new programmes in the professional courses, together with the close personal contact which is now being maintained by the dean and the professors with all the students in the schools, will still further enhance the reputation of the historic "Columbia School of Mines."

THE Lighthouse Board has voted to establish a gas buoy on "Ten Pound Island Ledge," in the Gloucester, Mass., harbor.

SPECIAL ENGLISH CORRESPONDENCE.

COMMUNICATED BY NORTON H. HUMPHRYS.

SALISBURY, ENGLAND, April 10th, 1908.

Two Richmonds in the Field.—Gas in the Railway Car.

In my letter dated September 10th last year—see Vol. 87, page 586—some reference was made under the heading "Cut-Throat Competition in Gas Supply," to the state of affairs at Draycott, a small district near Nottingham, and the circumstances then related need not be repeated. The Draycott Gas Company have applied to Parliament for an extension of their powers, and for a repeal of any authority granted to the Long Eaton Gas Company in respect to the district occupied by themselves, and the claims of both Companies have been ably presented before a Committee of the House of Commons. With regard to gas undertakings it cannot be said that there is one law for the rich and another for the poor. The smallest concern, if it applies for a Provisional Order or a Special Act, has to pay exactly the same fees as the largest, and the consequence is that there are thousands of small towns and villages throughout the country to-day that are without the advantages of a supply of gas, although such is almost as much a necessity to modern conditions of living as a water supply or a drainage scheme, simply for the reason that the expenses of forming a company are so great as to substantially enhance the amount required for capital, and at the same time to reduce the rate of dividend that can reasonably be looked for. Money is scarce in small communities, and more valuable than in large towns, because the opportunities of earning are fewer and more restricted. And, therefore, the small investment, if anything, stands more strongly in need of protection than the large, and the idea of dispensing with Statutory Powers below a certain limit does not find favor. A small concern to supply, say, 200 consumers, with a total requirement of 5,000,000 cubic feet per annum, can be put down complete and in working order for about £2,500. If they go to Parliament for a Provisional Order (which is the cheaper mode of proceeding) they will be lucky if they get through under £500, if unopposed. If there is opposition from the local authority or other interested parties, the expenses may be anything up to £1,000. Amongst other things they will be called upon to provide a properly fitted photometer room for testing the illuminating power of the gas, which will cost them about £100, and in nine cases out of ten will never be officially used. If they decide to manufacture sulphate of ammonia as a means of augmenting their small resources, the profit remaining after paying all working and incidental expenses and 5 per cent. interest on the cost of the apparatus, would barely represent a £5 note. But before commencing the manufacture of sulphate they must be prepared to take out a license at a cost of £3, or more strictly speaking £3. 5d., seeing that payment must be made by Post Office Order, the duty on which is 5d. If any tradesmen resorted to a similar means of getting a small extra squeeze out of his customers, the proceeding would be characterized in language more forcible than complimentary. It is necessary to appreciate these points when considering the position of a comparatively small concern, in being forced to apply to Parliament to secure protection against a larger and more powerful neighbor. The case submitted on behalf of the Draycott Company was to the effect that some 20 years ago the need of a gas supply was experienced, and that application was made to the Long Eaton Company, when they practically declined to entertain the application. One or two local gentlemen of influence promoted an independent company, which subsequently obtained statutory powers. But lately the Long Eaton Company had laid mains through the district, offered gas at considerally less than they were charging in Long Eaton, together with free fittings and other inducements to allure the consumers. Obviously the intention was to crush out the Draycott Company, which could produce a very fair record as to selling price and other terms affecting the consumers. Mr. Corbet Woodall, Sir Geo. Livesey and Mr. Chas. Hunt, supported the statements of counsel. On behalf of Long Eaton, districting arrangements were denounced as being for the benefit of gas managers and not for the public, and attempts were made to show that the present position at Draycott was an advantage to the consumers. But as a matter of fact the chief argument in favor of districting came from the public, who objected to the inconvenience caused by having two, three or even four sets of mains in one street, one or other of which was almost continually under repair, with the result that the roadway was blocked, for no inconsiderable proportion of the year, by gangs of main layers. A little mud throwing at the Draycott Company was indulged in, but no serious amount of it stuck. Like all other small undertakings the Directors have

occasionally applied their sound business common sense to the issue of capital and other matters, in a manner that does not conform strictly to the existing law. The questions involved no very serious sums of money, and a concern of this size cannot afford to take counsels' opinion on every detail.

The Long Eaton Company also endeavored to show that their action was advantageous to the public, but had no satisfactory reply to the argument that although the public might be getting some benefit for the time, out of an exceptional state of affairs, there was no guarantee that such advantage could be called a permanent one. For one thing there would be the people at Long Eaton to deal with, who would not be likely to sit down quietly under a price 9d. per 1,000 cubic feet in excess of that charged in a particular outside district. A man or a company who supply goods at a very low profit, or at no profit at all, expect to get their own back again, and with interest in one form or another. If there are two competitors, they eventually get tired of cutting against each other, and the usual trend of events is towards a combination which leaves the erstwhile rivals better off than before, and the public rather worse. After hearing both sides, the Chairman of the Committee announced, that, subject to certain rearrangements of details, the main points of contention were proved, and the bill would proceed. They were not very strongly impressed by the arguments in favor of competition. Apart from the consideration that if allowed to continue the present position of affairs would come to an end by a natural process, the Committee had regard to the established practice of Parliament, which was against allowing two companies in one area. Concurrent powers in the same area were equivalent to equal opportunities for each company to develop business. One Company had, until quite recently, neglected such opportunities, while the other had steadily worked up a prosperous and satisfactorily conducted business, and were therefore entitled to the undisturbed possession of the district so occupied.

The Long Eaton Company will have another opportunity, at a later stage, of opposing the bill; but after the definite pronouncement from the Committee of the House of Commons it is scarcely likely that they will do so, unless additional arguments or evidence can be raised on their behalf. This is not probable, as it may be presumed that every point in their favor has already been utilized. The Draycott Company showed that they had conducted their business skillfully, and had served the public well. As much might be expected, seeing that it was organized by persons who were prepared to become the principal consumers. If it could have been shown that they had been making exorbitant profits, or otherwise abusing their privileges, the result might have been different. Under existing circumstances, few of those who are really qualified to form an opinion on the matter, will be disposed to question the decision arrived at by the Committee.

I have been accustomed for the last 20 years to journey over a certain route of 250 miles or so on one of our main lines out of London, perhaps twice a year, and it is interesting to trace the improvements that have gradually been effected. The particular points are gain of speed, steadiness, punctuality, convenience and comfort, and lastly, of artificial lighting. Commencing with a period of over 7 hours according to book, but 8 in practical experience, the journey is now completed in 5 hours, and the difference between schedule and actual time has been reduced from 1 hour or more to well within 15 minutes. The road and the rolling stock have been improved, with a marked reduction in noise, rattling or vibration, to such an extent that conversation, reading and writing are now matters of ease and comfort, whereas at first they were all more or less impracticable. Refreshments could only be obtained *en route* at one or two principal stopping places, and then only under great inconveniences, by becoming a unit in a crowd of excited passengers and possibly being unable to get near the counters. After a violent exercise in running to get back to the seat in the carriage, there was the possibility that a particularly comfortable corner had been appropriated by some fierce looking, extremely muscular individual. As for a wash and a brush up, that was quite out of the question. The first sign of a change was the luncheon or tea basket, containing complete equipment for a modest meal, and very convenient it is, provided the space for two passengers can be obtained. But it is awkward to negotiate a hot luncheon in a compartment with five each side. One cannot very well ask the lady opposite to allow her knees to be utilized for the support of the basket. There was also the 10 minutes for refreshments at principal junctions —a period that did not suffice for serving half the applicants. Then came the corridor carriages, with wider compartments that admitted the use of small folding tables, on which tea, coffee, cold meats, etc., could be served. At the same time lavatory arrangement were introduced. The latest improvement, which leaves nothing further to be desired, is the dining car. These have rapidly gained public favor, and are now to be found on all the main line expresses. Some few days since I dined en route in an elegantly designed saloon, skillfully worked out to give an idea of spaciousness, and to do away with the cupboard-like sensation that until lately was always associated with a compartment in a railway car. The decorations, table service and attendance, were in every respect equal to the appointments of a good class hotel, and there was no risk of soup being washed overboard or bottles overturned. A well appointed meal in the course of a long journey considerably lessens the tediousness of the same, and the chance of subsequent fatigue. And this brings me up to the real point in view—the utility of gas in connection with railway rolling stock. An important feature, one might say an indispensable one, of the dining car above described, was a steel cylinder containing compressed gas, carried underneath the floor of the carriage, from which the incandescent burners for giving light, and the cooking arrangements in the cooking department were supplied. Some manufacturers are listing cookers especially designed for railway cars, and gas is always preferred if attainable. As regards lighting, 20 years ago the dismal smoky oil lamp was the only source of light available either in trains or steamboats. Various arrangements of gas and of electricity have been tried, but unquestionalby the best effect is produced by the inverted incandescent gas light, as giving a nearer approach to the steadiness, brilliancy and purity of daylight than can be obtained by any other means. The dining saloon was lighted by 12 inverted burners, two groups of 4, and two of 2. I am not as a rule in favor of even numbered combinations. Two, 4 or 6 burners cannot be so effectively arranged as 3, 5 or 7, and there is always the risk of 2 lights coming into line. And if 2 lights come either parallel or at right angles to the principal lines of the apartment there is a certain stiffness and crudity. These defects, however, were entirely avoided in the arrangements of the lights under consideration, which are an excellent advertisement for the advantages of gas light. In these days of advertising and push, the agents for the sale of gas have a good field to work on in seeing that it is used for railway cars, road cars, cabins of steamboats and similar situations where it is likely to come under the notice of large numbers of travellers.

ITEMS OF INTEREST FROM VARIOUS LOCALITIES.

UNDER the terms of an ordinance adopted the 13th inst., by the City Council, of Houston, Tex. After the 1st prox. "No person, firm corporation or receiver, engaged in the business of selling or furnishing gas to private consumers within the city * * * shall charge therefor not exceeding $1 per 1,000 cubic feet." The ordinance also provides that, upon conviction, in contravention of the above specification, the offender shall be fined not less than $25 and not more than $100. This rate will undoubtedly be overturned by the courts.

MR. THOMAS GOTTSHALL, who has had charge of the distributing division of the Boyertown (Pa.) Gas Company for quite some time, has been succeeded by Mr. William Engle.

THE Gas Pressure Regulating and Equipment Company has been incorporated by Messrs. L. W. Jacobs, Albert H. Gindele and Peter H. James. Its headquarters are in Jersey City, N. J., and it is capitalized in $100,000.

MR. CHARLES A. E. CARR, formerly Manager of the Montreal Park Island Railway, has been appointed Managing Director of the Quebec (Canada) Gas Company. Mr. Carr was at one time General Manager of the Helena (Mont.) Light, Power and Railway Company.

MR. HENRY SCHULTE, for many years on the working force of the Louisville (Ky.) Gas Company, died at his home in that city the morning of the 10th inst. He was in his 50th year, having been born in Cincinnati, April 5th, 1858.

MR. THOMAS H. HINTZE, formerly Superintendent of the gas department of the Syracuse (N. Y.) Lighting Company, has assumed the position of Superintendent of the North Station, Providence (R. I.) Gas Company.

"B. F. G.," writing from Dayton, O., under date of the 20th inst., forwards the following: "The employees of the Dayton Gas Light and Coke Company demonstrated their esteem and admiration for Joseph Light, the retiring Superintendent of the Company, last week when they gathered at the office and presented him with a beautiful silver loving cup and a handsome umbrella. Mr. M. C. Howard made the presentation speech. Mr. Light had been connected with the Company for 52 years and his service has always been faithful. He will be succeeded by his son, George Light. Upon Mr. Light's resignation the Board of Directors passed resolutions expressing regret at his retirement. The following excerpt from these resolutions expresses the attitude of the Board to the retiring official: 'He has been faithful to the interests of the Company, honest and loyal, and we wish to assure him of our highest esteem and well wishes for his health and the full fruition of his well-earned rest.'"

THE United Gas Improvement Company has disposed of its controlling interest in the plant and properties of the St. Albans (Vt.) Gas Light Company. Mr. Wilbur U. Maynard, of Leominster, Mass., has been elected President of the concern. The new owners have decided upon retaining Mr. A. J. Smith as Superintendent and Treasurer. We understand that the present proprietors are preparing to make notable extensions to the main system this summer.

THE investigation of the problem, whether or not it would be advisable for the municipality of New Bedford, Mass., to construct and operate a gas and electric lighting plant for furnishing lighting to

the public buildings and in the city's street lamps, is still dragging along. The "investigation" is being conducted by a committee, from the City Council, known as the Municipal Lighting Committee, and it is at present at the point where the query seems to be, "Is it advisable to purchase the gas and electric plants of the New Bedford Company?" In this connection, at a recent session of the committee, Ald. Livesey thought that would be near to the best practice in the premises; but Ald. Washburn made positive objection to such proceeding, the burden of his thought exposition being that while he believed the street lighting of the city would be bettered and be obtained at lower charge than that now paid, if a municipal plant were the base of supply, he nevertheless doubted the desirability of engaging in the supply of gas and electricity to the residents in general.

WE understand that construction work on the gas plant for Elmer, N. J., will be commenced this week.

A CORRESPONDENT in Milwaukee, Wis., writing under date of the 15th inst., incloses the following: "Through offering a voluntary reduction of 25 cents per 1,000, in the price of illuminating gas, making a uniform rate of $1, the Manitowoc Gas Company, in its petition to the Wisconsin State Railway Commission, which has just been filed, demands the right to inaugurate a ready-to-serve charge of 25 cents per month, affecting all patrons, this new order of things meaning an expense of $3 per year to the consumer. In its presentation of the matter the Gas Company claims that it is the only Company operating in Wisconsin which has not this charge, and makes the further contention that Manitowoc secures the cheapest gas of any city in Wisconsin outside of Milwaukee. To strengthen its position for the service charge the Company's brief before the Commission cites the fact that 351 of its 1,541 patrons paid the Company less than $2 during the 12 months just past. In each of these homes the Company claims to have tied up $20 to $30 in meters and service pipes, and it desires the Board to give it the right to make a charge sufficient to secure interest on this investment. It is doubtful that the city will make any appearance in objection to the Company's petition, as it is claimed that even with this 25 cents per month service charge the reduction in the price of illuminating gas will make the cost to the consumer not more than $1.07 per 1,000, which is 18 cents lower than now paid."

ARTICLES announcing the incorporation of the Royal City Gas Improvement Company, with a capital of $150,000, have been filed with the authorities of British Columbia. The purpose of the concern is: A. To manufacture and sell and supply gas for the purposes of light, heat and all industrial uses in the city of New Westminster and elsewhere in the province of British Columbia, and to carry on the business of a gas works company in all its branches. B. To deal with, manufacture and render salable coke, coal tar, pitch, asphaltum, ammoniacal liquor and any other residual products obtained in the manufacture of gas.

THE United Gas and Electric Company, of New Albany, Ind., has arranged to extend its distributing system to and through the outlying settlement of Silver Hills.

MANAGER FORBES, of the Ottawa (Canada) Gas Company, is busily engaged in installing a plant for the manufacture of pitch, and he further proposes next fall to engage in the manufacture of tar-saturated paper.

A UNIQUE action-at-law has been instituted on behalf of the estate of one William Davis, a criminal sent under sentence to the State Penetentiary, Frankfort, Ky., for a crime committed in Louisville, His sentence became operative last winter, and shortly after his arrival in Frankfort, and while crossing the prison yard, he picked up a wire that was in his way. No sooner was the contact made than death followed. The wire was a live one, and was attached to the distributing system of the Capital Gas and Electric Company, of Frankfort. The suit is for $25,000.

COMMISSIONER DORAN, of Dallas, Tex., is looking around for a person fit to fill the position of official gas inspector for that city, under the ordinance providing for such city official, which ordinance became effective April 1st. The munificent sum of $1,200 per annum goes with the position.

PROF. C. E. DRAPER concluded last week in York, Pa., a very successful demonstration series respecting how and what to cook with gas, the lectures being given at the instance of the local Gas Company.

ANOTHER successful demonstration along the lines noted above was that given by the Elkhart (Ind.) Company the second week in April. The demonstratress was Miss Schabacker.

"JUST a line" to inform the Western Gas Construction Company that we have received a specimen of its desk blotter sheet pad, and compliment the Company on its attractiveness. Send along a line asking for one. It is well worth having.

THE bill which went through the lower and upper branches of the Maryland Legislature, under which it was ordered that rather extreme reductions in the gas and electric rates charged by those interested in the supply of such to the residents of Frederick county, was vetoed by Governor Crother. The Governor's memorandum was short and sweet. When the bill was presented to him and while he was writing the word "veto" on the face of the measure, he remarked, "I have carefully examined into the affairs of the Company which would be affected by this bill, and I do not believe that it is earning a fair return on its investment. To sign this bill would be in the nature of confiscation of property."

MR. F. E. HOLDEN, President of the Woonsocket (R. I.) Gas Company, does not own the Woonsocket (R. I.) *Reporter*, wherefore we are at a loss to comprehend why it should print this article (a leading editorial) respecting the Woonsocket Gas Company. We certainly hold that all that is said therein is true; but how can it be reconciled with the usual run of editorial sentiment when a gas company and its officers are under comment? Still the printed lines are: "The city of Woonsocket may justly pride itself on having the Woonsocket Gas Company, a public utility firm that will compare favorably with any in the entire country. The eyes of all the people are constantly riveted upon it; it is regarded as a public servant, and watched with a zealous eye. Considering this, the record of the Woonsocket Gas Company is indeed remarkable. It is probably less subject to adverse criticism than any institution of its kind in the State. The Company is putting forth its best efforts to give the city the best possible service and should receive the support and encouragement of every laboring man and the general public in our city. The gentlemen in whose hands is the destiny of this Company are men whose names stand for everything reliable and public-spirited. They have always shown that they are interested in the workingmen of our city by paying a good scale of wages. This Company should have a continued era of prosperity, and the co-operation of all those who have at heart the city's best interests."

HERE is a story of waste which comes to us by way of Davenport, Ia., under date of the 21st inst.: "It is estimated that there are about 30 carloads of tar which must be removed from the some-time unused gasholder tank, at the junction of Le Claire and Third streets before the big pit can be filled preparatory to active building operations on the proposed new factories of the Davenport Wagon Company. The Lewis Roofing Company has been induced to remove the tar free of charge for the value of the material." Just think of it; "free of charge for the value of the material." The Lewis concern certainly should manage to declare an extra dividend on its operations for the current year.

THE right to construct and operate a gas works in the village of Silvis, Ills., which was operative on the filing of acceptance of the franchise, by W. H. Downing and associates the 2d ult., has been secured through assignment by the United Light and Power Company.

IN 1904 the Denver (Col.) Gas and Electric Company had 15,974 separate meters in use; now the number is 25,182. In 1904 the electrical consumers numbered 10,751; now the number is 20,945. In 1904 gas ranges in use numbered 8,082; now the number is well in excess of 20,000. In 1904 there were 136.5 miles of mains under the streets; in 1908 the number is 214.25 miles. In 1904 the Company had 155.9 miles of electrical lines in use; in 1908 the number is 336.2.

MAYOR INGLEDUE, of Marshalltown, Ia., in his annual message to the City Council, recommends the passage of an ordinance directing that the gas rate be cut to $1 per 1,000 cubic feet. The current rate is $1.45. How's that for a drastic shave?

THE New Haven (Conn.) Company is extending its mains to Pine Orchard, and the purpose is to have the work completed before July 10th. It is certainly worthy of note that Mr. Nettleton and his associates have a keen perception of the value of hooking up settlements that promise well to the main lines of the Company. And that it has been a paying game is well illustrated in the success which accompanied the piping of Woodmont about 5 years ago for a gas supply. This meant the putting down of perhaps 6 miles of 4-inch line, much of which was run through soft spots along the Sound, but the return from the line has justified and is justifying the expenditure. In the meantime, what has Bridgeport, to the South of Woodmont, been doing in this respect? Not a thing.

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MONDAY, APRIL 27, 1908.

The Market for Gas Securities.

The market for Consolidated gas was dull and uneven during the week, the tendency being fractionally lower. The opening figures to-day (Friday) were 117¼ to 118. The short interest in the stock is practically eliminated. There is good reason for believing that another upward movement will be shown in the shares early in May.

Brooklyn Union maintains its recent advance, although nominally buyers and sellers are at wide variance over their estimates as to its value. Peoples, of Chicago, is again over the 90 mark, and Massachusetts gas is again getting in its stride, although it still is very cheap. Washington gas, in spite of the fact that the law makers assert that a revision in gas rates for the District of Columbia is quite certain, scored an advance of 10 points for the week. Of course, the visit here a fortnight or so ago of Messrs. Hart, Fisher and McIlhenny, had nothing to do with the rise. In fact, we know that the trinity assisted at the services in St. Patrick's Cathedral the morning of Palm Sunday. Sometimes even gas men need sanctification.

Gas Stocks.

Quotations by George W. Close, Broker and Dealer in Gas Stocks.

16 WALL STREET, NEW YORK CITY.

APRIL 27.

☞ All communications will receive particular attention.

☞ The following quotations are based on the par value of $100 per share:

N. Y. City Companies.	*Capital.*	*Par.*	*Bid.*	*Asked.*
Consolidated	$73,177,000	100	117⅛	118
Central Union Gas Co.—				
1st 5's, due 1913, J. & J.	3,000,000	1,000	92	7
Equitable Gas Light Co.—				
Con. 5's, due 1932, M. & S.	1,000,000	1,000	—	105
Mutual	3,500,000	100	—	170
New Amsterdam Gas Co.—				
1st Con. 5's, due 1948, J. & J.	11,000,000	1,000	90	95
New York & Richmond Gas Co. (Staten Island)	1,500,000	100	37	43
1st Mtg. Gold Bds. 5 p. ct.	1,000,000	—	98	104
New York and East River—				
1st 5's, due 1944, J. & J.	3,500,000	1,000	100	105
Con. 5's, due 1945, J. & J.	1,500,000	—	97	101
Northern Union—				
1st 5's, due 1927, J. & J.	1,250,000	1,000	90	98
Standard	5,000,000	100	70	100
Preferred	5,000,000	100	100	125
1st Mtg. 5's, due 1930, M. & N.	1,500,000	1,000	100	105
The Brooklyn Union	15,000,000	1,000	114	150
1st Con. 5's, due 1948, M. & N.	15,000,000	—	91⅝	92
Yonkers	200,000	500	130	—
Out-of-Town Companies.				
Bay State	50,000,000	50	1	1 1-16
" Income Bonds	2,000,000	1,000	—	75
Binghampton Gas Works	450,000	100	—	65
" 1st Mtg. 5's	500,000	1,000	95	100
Boston United Gas Co.—				
1st Series S. F. Trust	7,000,000	1,000	82	85
2d " " "	3,000,000	1,000	47½	50
Buffalo City Gas Co.	5,500,000	100	5	8
" " Bonds, 5's	5,250,000	1,000	63	66
Capital, Sacramento	500,000	50	—	35
Bonds (6's)	150,000	1,000	—	—
Chicago Gas Co. Guaranteed Gold Bonds	7,000,000	1,000	104	106¼
Cincinnati Gas and Electric Co.	29,500,000	100	109¾	91
Columbus (O.) Gas Co., 1st Mortgage Bonds	1,500,000	1,000	92	98
Columbus (O.) Gas Lt. & Heating Co.	1,682,750	100	87	88
Preferred	3,026,500	100	81	82
Consumers, Toronto	2,000,000	50	200	204
Consolidated, Baltimore	11,000,000	100	—	10½
Mortgages, 6's	3,000,000	—	—	118
Chesapeake, 1st 6's	1,000,000	—	—	—
Equitable, 1st 6's	910,000	—	—	—
Consolidated, 1st 5's	1,490,000	—	—	112
Consolidated Gas Co. of N. J.	1,000,000	100	15	17
Con. Mtg. 5's	880,000	1,000	92	95
Bonds	75,000	—	—	100
Denver Gas and Electric	—	—	74½	75
Detroit City Gas Co.	6,000,000	50	—	50
" Prior Lien 5's	4,618,000	1,000	—	98
Detroit Gas Co., 5's	381,000	1,000	75	80
" Inc. 5's	16,000	100	98½	100
Equitable Gas & Fuel Co., Chicago, Bonds	2,000,000	1,000	—	101
Essex and Hudson Gas Co.	6,500,000	—	39	40
Fort Wayne	2,000,000	—	—	—
" Bonds	2,000,000	—	55	—
Grand Rapids Gas Lt. Co., 1st Mtg. 5's	1,225,000	1,000	104½	105
Hartford	750,000	25	190	200
Hudson County Gas Co., of New Jersey	10,500,000	—	100	105
" Bonds, 5's	10,000,000	—	101	102½
Indianapolis	2,000,000	—	60	70
" Bonds, 5's	2,650,000	—	104½	105
Jackson Gas Co.	250,000	10	82	—
" 1st Mtg. 5's	290,000	1,000	97	100
Kansas City Gas Light Co., of Missouri	5,000,000	100	—	36
Bonds, 1st 5's	3,822,000	1,000	102	104
Laclede, St. Louis	10,000,000	100	97	97¼
Preferred	2,500,000	100	93¾	93
Bonds	10,000,000	1,000	104	104¼
Lafayette Gas Co., Ind.	1,000,000	100	—	60
Bonds	1,000,000	1,000	60	65
Louisville	2,570,000	50	143	145
Madison Gas & Elec. Co.				
" 1st Mtg. 6's	350,000	1,000	106	106¾
" 6 per cent. scrip, due 1910	100,000	25	60	60½
Massachusetts Gas Companies, of Boston	25,000,000	100	52	52½
Preferred	25,000,000	100	87	87½
Montreal, Canada	2,000,000	100	218	218¾
Nashville Gas Lt. Co.	1,000,000	100	110	—
Newark, N. J., Con. Gas Co.	6,000,000	—	56	58
Bonds, 6's	6,000,000	—	137	138
New Haven	2,000,000	25	200	—
Peoples Gas Lt. & Coke Co., Chicago	25,000,000	100	90¾	90¾
1st Mortgage	30,100,000	1,000	—	—
2d "	2,500,000	1,000	104	—
Rochester Gas & Elec. Co.	2,150,000	50	88	—
Preferred	2,150,000	50	118	—
Consolidated 5's	2,000,000	—	104¾	105½
San Francisco, Cal.	15,500,000	—	—	—
St. Joseph Gas Co.—				
1st Mtg. 5's	751,000	1,000	92	—
St. Paul Gas Light Co.	1,500,000	100	45	47
1st Mortgages, 6's	650,000	1,000	113	116
Extension, 6's	600,000	1,000	112¾	115
General Mortgage, 5's	2,445,000	1,000	93¼	—
Syracuse, N. Y.	1,375,000	100	50	55
Bonds	2,047,000	1,000	102	—
Washington, D. C.	2,600,000	20	320	325
1st Mortgage, 6's	600,000	—	—	—
Western, Milwaukee	4,000,000	—	—	—
Wilmington, Del.	600,000	50	230	—

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ANNUAL MEETING.

OFFICE OF THE UNITED GAS IMPROVEMENT CO., N. W. CORNER BROAD AND ARCH STS., PHILADELPHIA, April 16, 1908.

The Annual Meeting of the Stockholders of The United Gas Improvement Company will be held at the office of the Company, Northwest Corner of BROAD AND ARCH STREETS, PHILADELPHIA, Monday, May 4, 1908, at 12 o'clock, NOON, when an election will be held for a President and six (6) Directors, to serve for the ensuing year, and such other business transacted as may be brought before the meeting. The stock transfer books will be closed from 3 P.M., Wednesday, April 22 until 10 A.M., Tuesday, May 5.

1715-2 W. F. DOUTHIRT, Secretary.

POSITION WANTED.

The advertiser wishes to obtain a position either as superintendent of a water or coal gas plant, or in a plant making both gases, or would accept a foremanship in a large works. Is thoroughly conversant with main and service laying, house piping, etc. Any required references can be furnished.

1715-2 Address, "W. B.," care this Journal.

Position Wanted

By a well known gas superintendent, who has had 20 years' experience in the manufacturing and distribution of gas.

Address, "F. J. R.,"

17 5-2 Care this Journal.

Position Wanted

By married man with 15 years' experience in the manufacture and distribution of coal and water gas, as Superintendent or Foreman of gas works. Address, "M. M.,"

1715-2 Care this Journal.

WANTED,

Position as Manager or Superintendent of Gas and Electric Company,

In city of 20,000 to 50,000 population, by man competent to take entire charge. Strictly sober, energetic, thoroughly drilled in each department of operation and business, 36 years old, married, excellent references. At present superintendent of works of large Western gas company.

1715-4 Address, "W. R. S.," care this Journal.

Position Wanted

As Superintendent of a Water Gas Plant, or General Manager or New Business Manager of a Mixed Gas Company,

By a practical man with 10 years' experience. Best of references. Address, "C. O. B. T.,"

1716-2 Care this Journal.

Position Wanted.

Superintendent or manager, especially well versed in construction and new business methods, with successful record, desires a position with gas company. Has had wide practical experience in the operation of both coal and water gas processes.

1715-3 Address, "F. T. S.," care this Journal.

PRACTICAL GAS SUPERINTENDENT

Desires permanent position with medium or small sized gas company as *Manager* or *Superintendent*. Qualified to take entire charge of coal gas property. Good, clean record; 17 years' experience. Correspondence solicited.

1716-4 Address, "PRACTICAL," care this Journal.

WANTED,

Two Experienced Canvassers,

Capable of estimating on house piping and other general work. City of 25,000, in New York State. Address, "A. S. G.,"

1716-2 Care this Journal.

WANTED,

Combined Gas, Electric Light and Power Property

In city of not less than 20,000 population. Address, "BOX 150,"

1714-3 Care this Journal.

WANTED,

One Good Second-hand 6-inch or 8-inch Gas Exhauster Complete.

Inquire of

STANDARD GAS AND ELECTRIC CO.,

1707-tf RALEIGH, N. C.

FOR SALE.

FOUR SECOND-HAND PURIFIERS.

Dimensions, 10 feet by 14 feet by 3 feet deep, with dry center valve and connecting pipes 10 inches diameter. Seal 16 inches deep. Inquire of the

DAYTON GAS LIGHT AND COKE CO.,

1697-tf DAYTON, O.

FOR SALE,

Two New No. 9½ Green Horizontal Gas Exhausters or Blowers. Capacity per revolution, 55 cubic feet; 20-inch connections.

Two Second-hand No. 9B Green Horizontal Gas Exhausters or Blowers. Capacity per revolution, 45 cubic feet; 16-inch connections.

For particulars, address, SEMET-SOLVAY COMPANY,

1711-3m Syracuse, N. Y.

FOR SALE,

ONE CAST IRON STATION METER,

Four-foot drum, with 6-inch connections, on cast base. Exterior and interior in perfect condition.

1716-4 Address, "H. C.," care this Journal.

FOR SALE,

One 7-foot American Meter Co. Station Meter, with 12 inch connections. The meter was built in 1896, and is in first-class condition.

Three Cast Iron Purifying Boxes, 21 feet by 21 feet by 4 feet deep; seal, 30 inches deep.

One Traveling Crane (track on floor), with oil pump and fittings complete, and 12 inch pipe, valves and fittings for a 3-box system complete.

Address, GEO. LIGHT,

171'-tf DAYTON, O.

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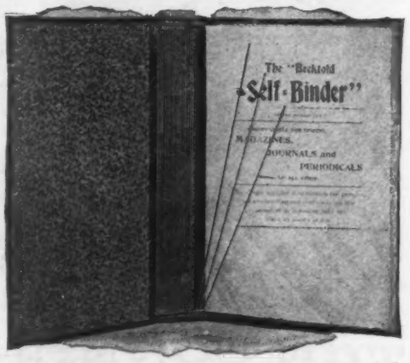

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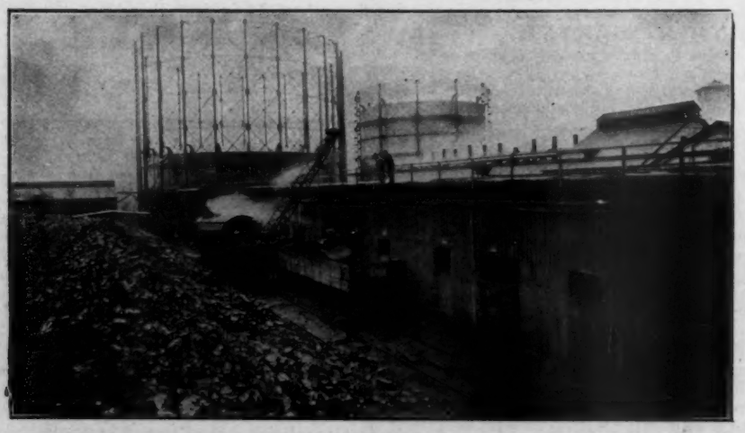
Gas Engineer's Pocket-book, —BY— HENRY O'CONNOR
Comprising Tables, Notes and Memoranda relating to the Manufacture, Distribution and Use of Coal Gas, and the Construction of Gas Works. PRICE, $3.50. For Sale by
A. M. Callender & Co., 42 Pine St., New York City.



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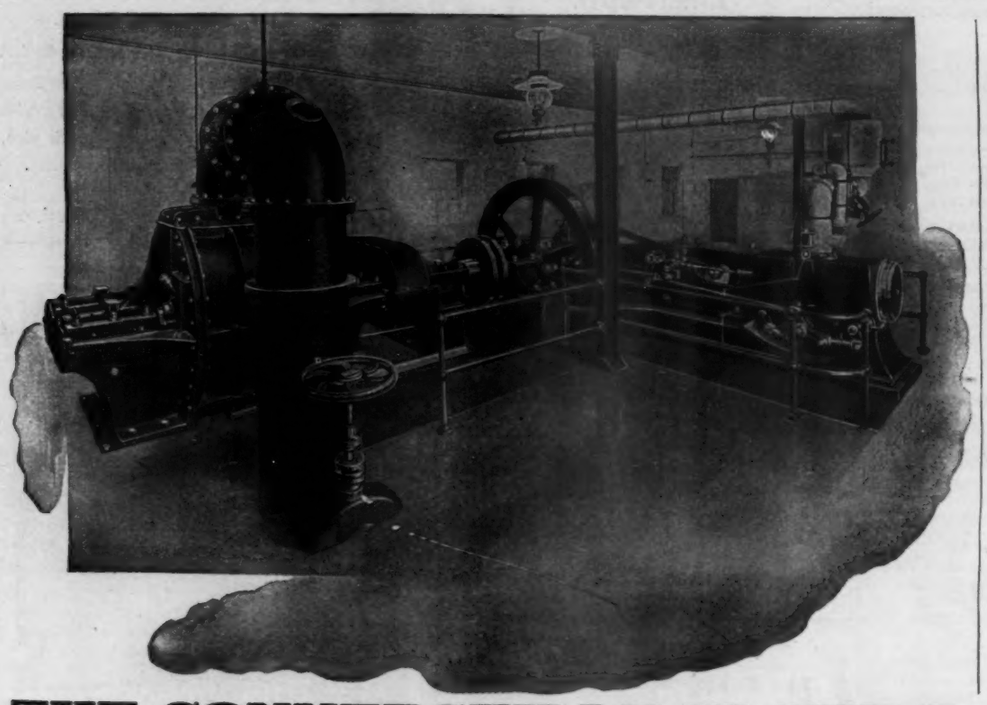

THIS cut shows one of our High Pressure machines and a 4-valve engine connected by one of our leather link flexible couplings. Two of these units were installed for the Peoples Gas Light and Coke Co., Chicago, at their 73d St. Station. Each machine has a capacity of 14,000,000 cubic feet per day.

We also manufacture

**GAS VALVES,
BY-PASS VALVES,
PRESSURE REGULATORS,
ETC., ETC.**

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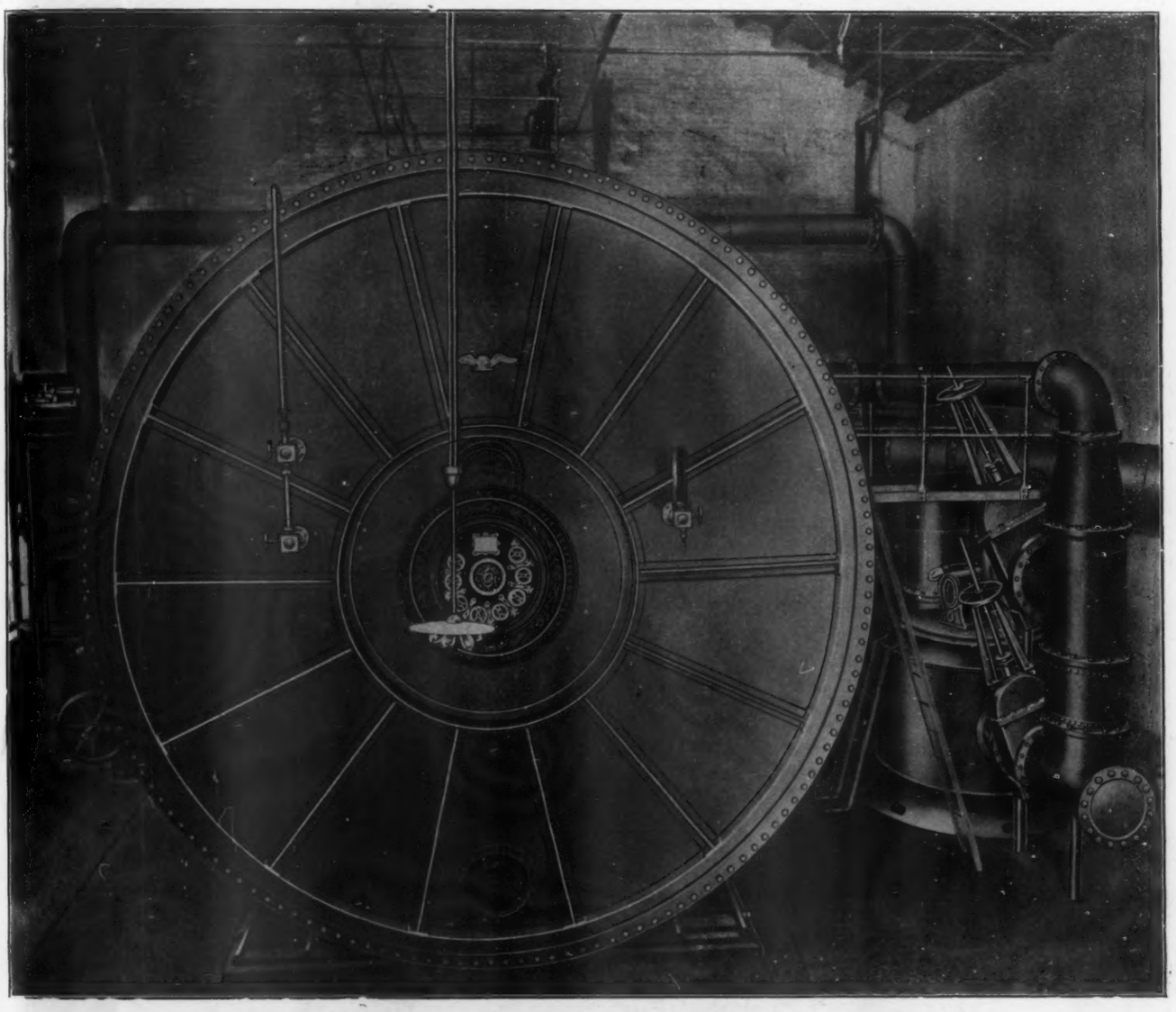

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Old Style Wet Meter, 6,000,000 cu. ft. capacity per day.

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4,000,000 cu. ft. capacity per day (at right of picture).

One-half the cost—One-tenth the space of old style wet meters.

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P. PLANTINGA, President W. E. STEINWEDELL, Secretary

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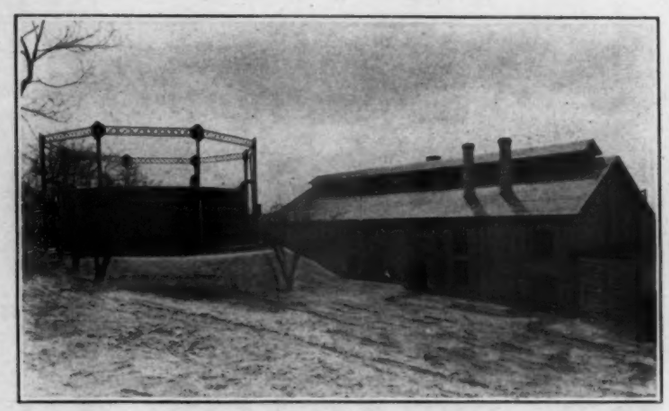

COAL GAS WORKS.

THE GAS MACHINERY CO.
CLEVELAND, OHIO.

ANNOUNCEMENT.

DIDIER-MARCH COMPANY,

FREDERICK J. MAYER, General Manager.

We take great pleasure in announcing the consolidation of our offices, formerly located in the Park Row Building, New York City, and the Keyser Building, in Baltimore, Md., at the new building of the Hudson Terminal Company, called the Fulton Building, No. 50 Church Street, after May 1st.

The above building is the New York terminal of the tunnel, communicating with the Pennsylvania and other railroads entering the Pennsylvania depot at Jersey City, and the Delaware, Lackawanna and Western, and the Erie railroads.

The building will have direct connection with the Sixth Avenue Elevated Railroad and the Subway.

Our Baltimore office will be moved to the new location some time between May 1st and August 1st, and due notice will be given at the time of removal.

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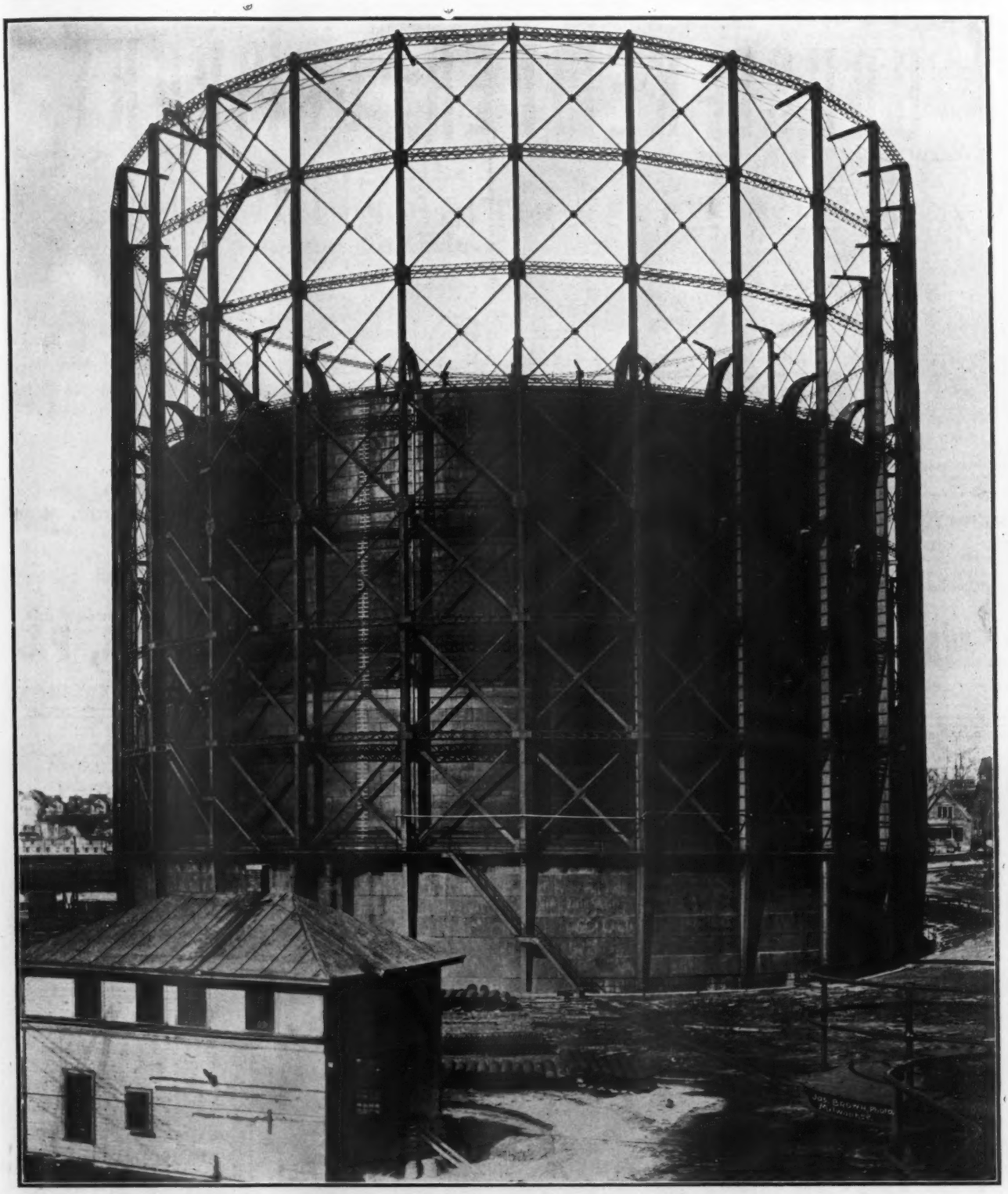

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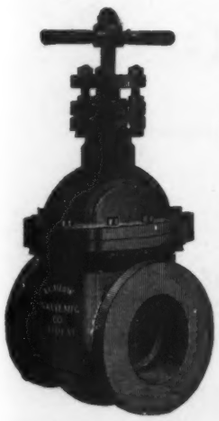

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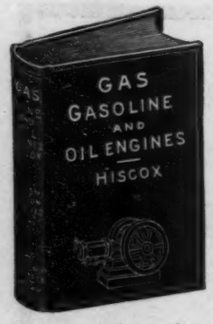

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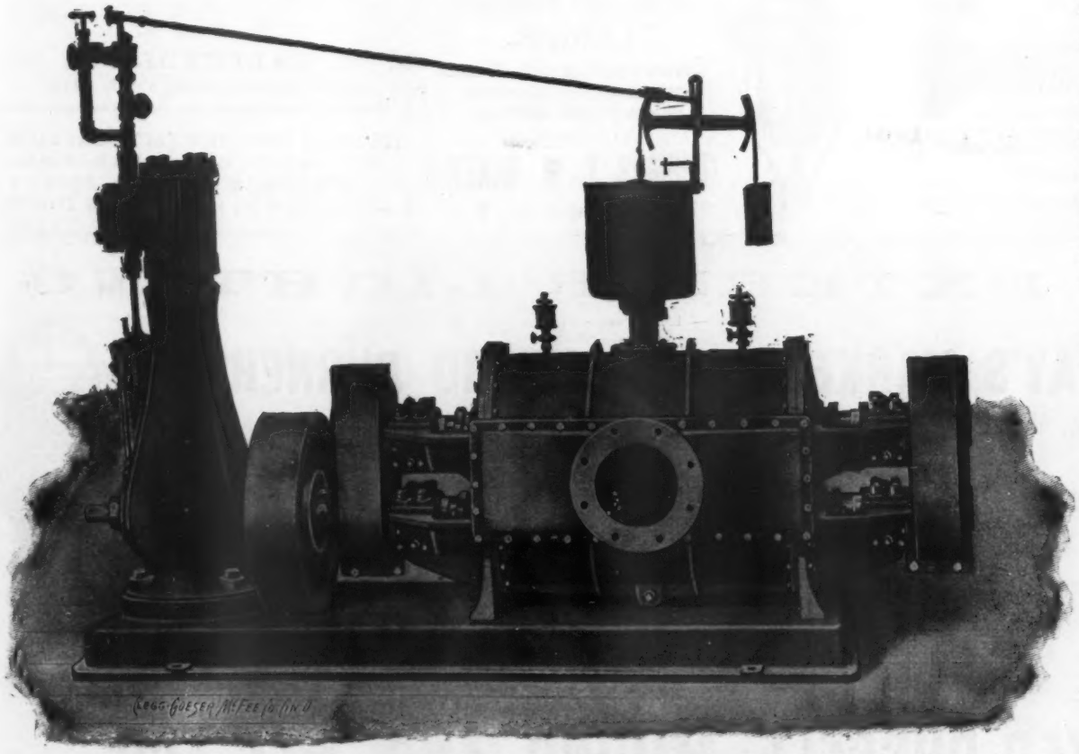

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PUBLIC LIGHTING TABLE.

MAY, 1908.

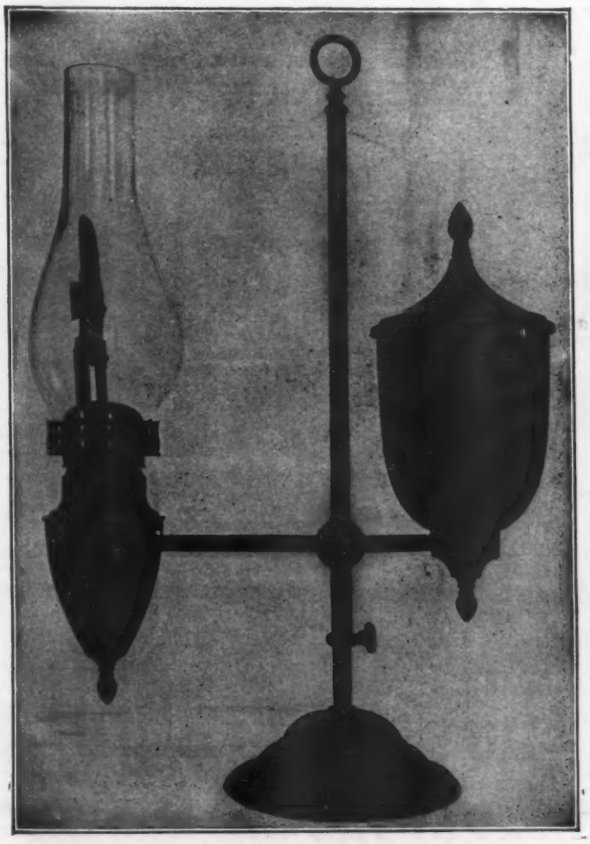
Table No. 1.
FOLLOWING THE MOON.

Day of Week.	Date.	Light.	Extinguish.
Fri.	1	7.20 PM	4.00 AM
Sat.	2	7.20	4.00
Sun.	3	7.30	3.50
Mon.	4	7.30	3.50
Tue.	5	11.00	3.50
Wed.	6	11.40	3.50
Thu.	7	12.20 AM FQ	3.50
Fri.	8	12.50	3.50
Sat.	9	1.20	3.50
Sun.	10	1.50	3.50
Mon.	11	2.10	3.50
Tue.	12	2.40	3.50
Wed.	13	3.10	3.50
Thu.	14	No L.	No L.
Fri.	15	No L FM	No L.
Sat.	16	No L.	No L.
Sun.	17	7.40 PM	10.00 PM
Mon.	18	7.40	11.10
Tue.	19	7.40	12.10 AM
Wed.	20	7.40	1.00
Thu.	21	7.40	1.40
Fri.	22	7.40 LQ	2.20
Sat.	23	7.40	2.50
Sun.	24	7.50	3.20
Mon.	25	7.50	3.40
Tue.	26	7.50	3.40
Wed.	27	7.50	3.40
Thu.	28	7.50	3.40
Fri.	29	7.50 NM	3.40
Sat.	30	7.50	3.40
Sun.	31	7 50	3 30

TOTAL HOURS DURING 1908.

By Table No. 1.

	Hrs.Min.
January	228.30
February	187.30
March	192.00
April	160.10
May	155.10
June	138.00
July	155.50
August	173.40
September	185.20
October	214.00
November	218.10
December	226.40
Total, yr.	2235.00



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2d. It is remarkably steady. Will burn 24 hours continuously with less than 2 per cent. variation.

3d. It is much less dangerous than Pentane, which is a kind of gasolene.

4th. It is not easily affected by air currents in the photometer room.

5th. Since the lamp may burn continuously, the candle power of gas may be taken at any moment, if necessary. This insures steady illuminating power without waste of carburetting material.

6th. The first cost of the lamp brings it within the reach of even small gas works.

7th. Costs much less to maintain than a Pentane lamp or sperm candles doing the same service.

8th. Is not affected by the weather.

PUBLIC LIGHTING TABLE.

MAY, 1908.

Table No. 2.
NEW YORK CITY.
ALL NIGHT LIGHTING.

Day of Week.	Date.	Complete Lighting in One Hour (From Time Given P. M.)	Complete Extinguishing in 50 Minutes (From Time Given A. M.)
Fri.	1	6.47	3.52
Sat.	2	6.47	3.52
Sun.	3	6.47	3.52
Mon.	4	6.47	3.52
Tue.	5	6.47	3.52
Wed.	6	6.47	3.52
Thu.	7	6.57	3.42
Fri.	8	6.57	3.42
Sat.	9	6.57	3.42
Sun.	10	6.57	3.42
Mon.	11	6.57	3.37
Tue.	12	6.57	3.37
Wed.	13	6.57	3.37
Thu.	14	7.07	3.27
Fri.	15	7.07	3.27
Sat.	16	7.07	3.27
Sun.	17	7.07	3.27
Mon.	18	7.07	3.27
Tue.	19	7.07	3.27
Wed.	20	7.07	3.27
Thu.	21	7.12	3.22
Fri.	22	7.12	3.22
Sat.	23	7.12	3.22
Sun.	24	7.12	3.22
Mon.	25	7.12	3.22
Tue.	26	7.12	3 22
Wed.	27	7.12	3.22
Thu.	28	7.12	3.17
Fri.	29	7.12	3.17
Sat.	30	7.12	3.17
Sun.	31	7.12	3.17

TOTAL HOURS DURING 1908.

	Hrs.Min.
January	481.50
February	329.15
March	351.50
April	341.50
May	233.05
June	218.10
July	282.55
August	254.55
September	292.25
October	420.45
November	374.30
December	411.05
	3992.35
Deduct on account of 50 min. extinguishing time	30.30
Total, yr.	3962.05

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Jenkintown, Pa. (2d contract).
Coney Island, N. Y.
Mexico, Mo.
Jacksonville, Fla.
Syracuse, N. Y. (2d contract).
Atlanta, Ga. (2d contract).
Holyoke, Mass.
Peoria, Ills.
Schenectady, N. Y. (2d contract).
Danbury, Conn.
Galveston, Tex. (2d contract).
Quebec, Canada.
Indianapolis, Ind. (2d contract).
Bessemer, Ala.
Waterbury, Conn. (5th contract).
Sioux Falls, S. D. (3d contract).
Philadelphia, Pa.
New Hartford, Conn.
Poughkeepsie, N.Y. (2d contract)
Nashville, Tenn.
Salisbury, Md.
Norfolk, Va. (4th contract).
Wallingford, Conn.
Richmond, Va. (2d contract).
Oak Bluffs, Mass.
Arlington, Mass.

TOTAL SETS INSTALLED DURING YEAR, ... 43
TOTAL SETS INSTALLED TO DECEMBER 31, 1907, ... 677
TOTAL DAILY CAPACITY, TO DECEMBER 31, 1907, ... 545,865,000 cu. ft.

Tar Extractors for Carburetted Water Gas.
Photometrical Apparatus.
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Straight Standpipe System for Coal Gas Retorts
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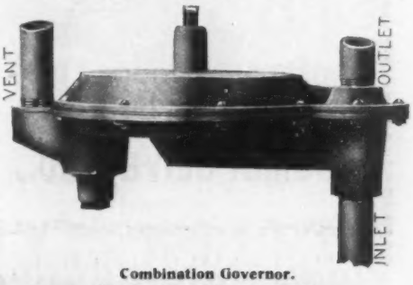

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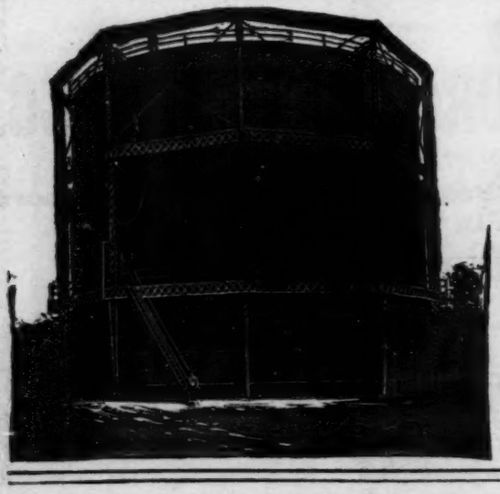

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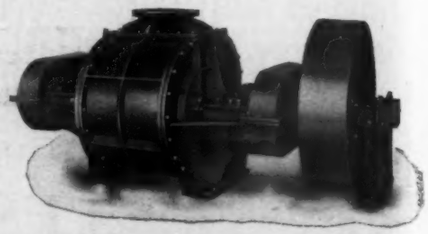

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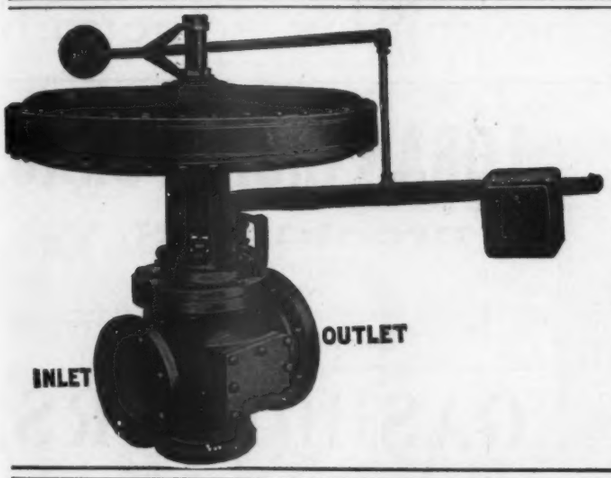

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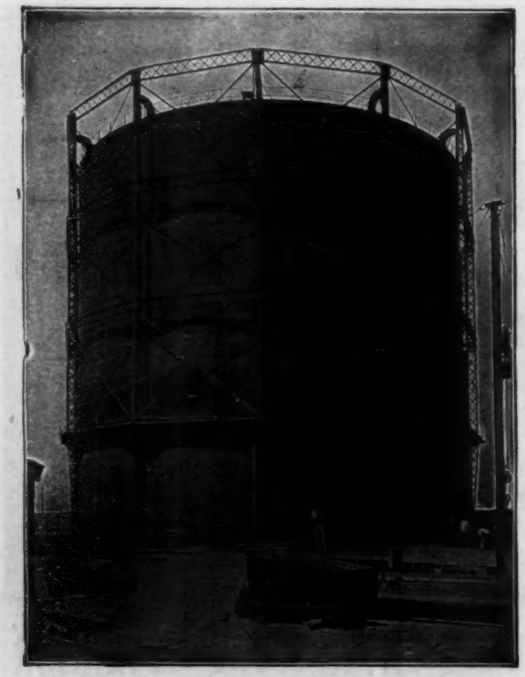

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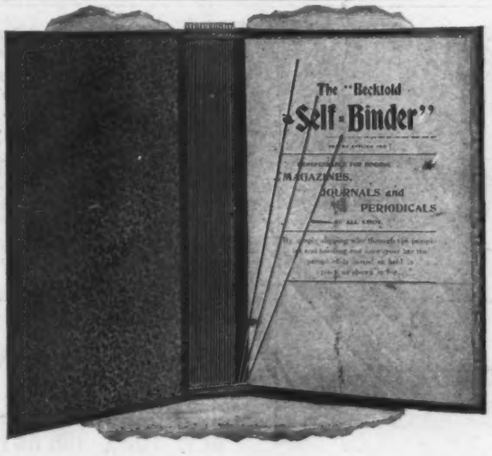

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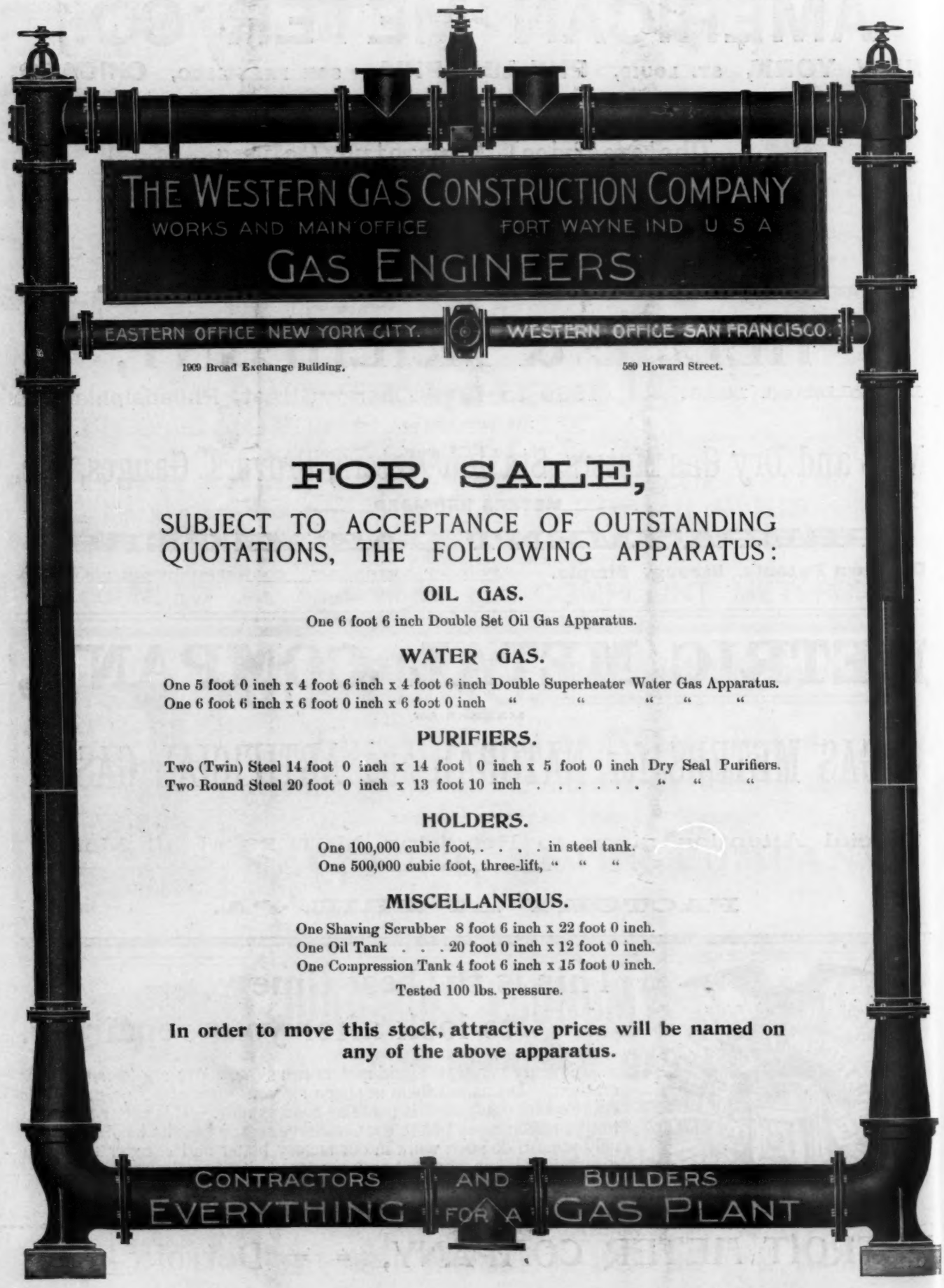
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